SEPTEMBER, 1950

American Engineer

IN THIS ISSUE . . .

LETTER FROM WASHINGTON
RE: THE EMERGENCY AND ENGINEERS

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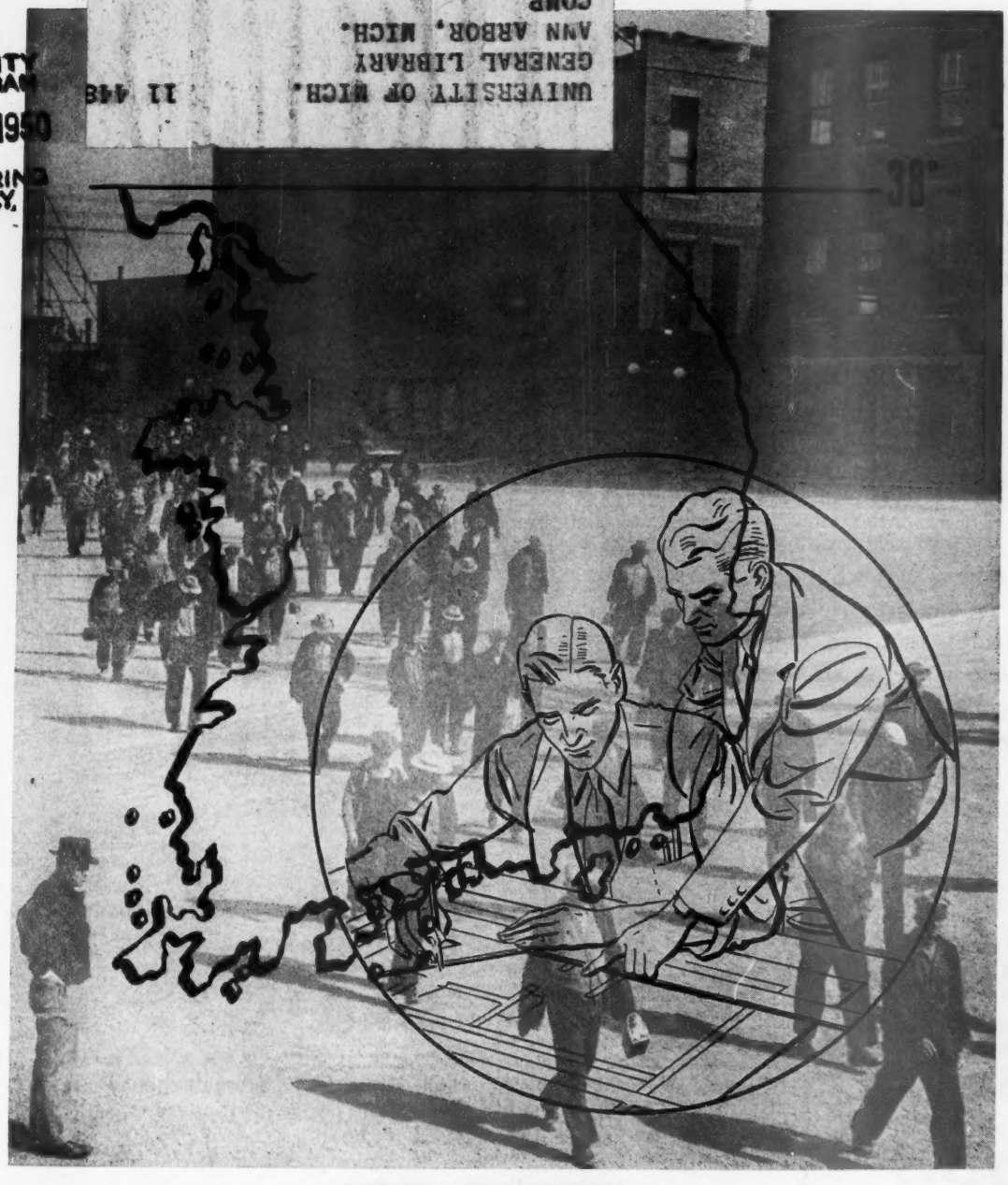

IS KOREA THE BEGINNING?
The Profession Watches A Cold War Get Warm

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American Engineer

SEPTEMBER, 1950

► **COVER STORY. Letter From Washington Re: The Emergency and Engineers** 6

The Conservation of Man 9
A Think Article by B. N. Aldrich, P.E. Here's proof that engineers, too, have prolonged our lives.

Is Engineering A Profession? 12
By James F. Fairman, P.E., Past President of AIEE. Every true professional engineer owes it to himself to read this article.

Employment Practices of Engineering Firms In Oklahoma 14

Regular Features

Editorials 4
What They're Saying 16
Legislative Report 19
Accent On Activity 20
Book Looks 21
Letters To The Editor 22
Around The Nation With Our Members 23

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"In the final analysis, it is the engineer who, today, in large measure, must marshal a Nation's work-power at its greatest and speediest efficiency, and place this combination of natural and industrial resources at the disposal of the military command."

—Representative Overton Brooks, House Armed Services Committee

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• AN EDITORIAL •

Bringing Dreams Out Into The Daylight

We recently came upon a copy of a talk given sometime ago by Dr. D. B. Steinman, the eminent bridge engineer, and NSPE's first president. The talk, directed at young men who think they want to be engineers, was the "cold facts" sort of thing that laid the profession's good and bad points boldly on the line. One could almost picture the still faces of the eager students as the experienced and realistic doctor dealt their dreams some body blows.

No, the engineering profession offers little pink lemonade to its members. And, as Steinman points out, it is cruel to paint untrue pictures and be "responsible for the heartbreak and the disillusionment of young graduates who are unable to gain a foothold in their chosen profession, and the hopelessness and despair of older men who find professional employment precarious, underpaid, or unobtainable."

Then, warming to his subject, the noted engineer became specific. He pointed out that unlike other professions, the opportunities for independent private practice in engineering are limited. That only about five percent of all engineers are in private practice, with uncertain income, and the remaining ninety-five percent are employees working for salaries, with uncertain tenure of employment. Further, there are many thousands of competent engineers who wish they could earn as much as bricklayers, plumbers, painters, ironworkers, plasterers, or mechanics.

Turning to the actual work of the engineer, Steinman says that reduced to cold facts, it is found to be quite prosaic, and frequently of repetitive routine. Figures, calculations, formulas, tabulations, drafting, detailing, tests, contracts, inspections, estimates, reports, and more calculations—these make up the bulk of engineering work. Moreover, of all engineering students enrolling in our colleges, only about forty percent ultimately graduate, representing a mortality of sixty percent within the engineering schools. There is further mortality, or dropping from the profession, during the early years after graduation, so that at any time only about fifty-five percent of the living engineering graduates are found remaining in engineering work. With few exceptions, the doctor sums up, all this represents a tragic waste of economic and human values.

There it is and there's no getting away from it. Most engineers who have weathered the ups and downs of the profession would side with Doctor Steinman. But we wonder, and here we use our imagination again, how many meetings of prospective engineering students the doctor has left, saying to himself, "There. That will separate the men from the boys." Why not get rid of the forty-five percent who will fall by the wayside *before* the shooting starts?

Our colleges will soon open their doors to a new group of young people. Among them will be many young men who want to become engineers. Chances are they want to join the profession because at some time during their impressionable years they held in high regard a parent, an uncle, or a family friend, who was an engineer. It should be the duty of that individual to talk to the engineer-to-be in Steinman-like tones. Then, if the student is still determined, the talk might be ended in much the same way as Doctor Steinman ends his: "But, the one priceless reward you can look forward to is the inner satisfaction of useful creative accomplishment and enduring contributions to human comfort and progress."

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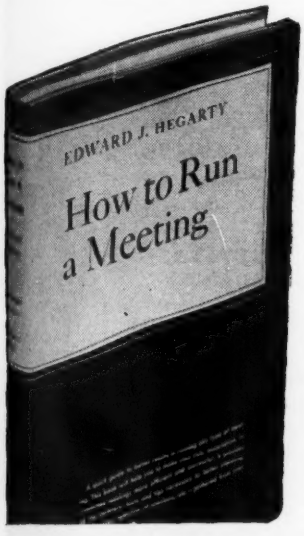

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By Edward J. Hegarty

Manager of Sales Training for Westinghouse

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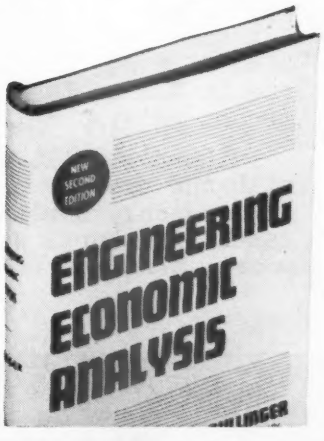

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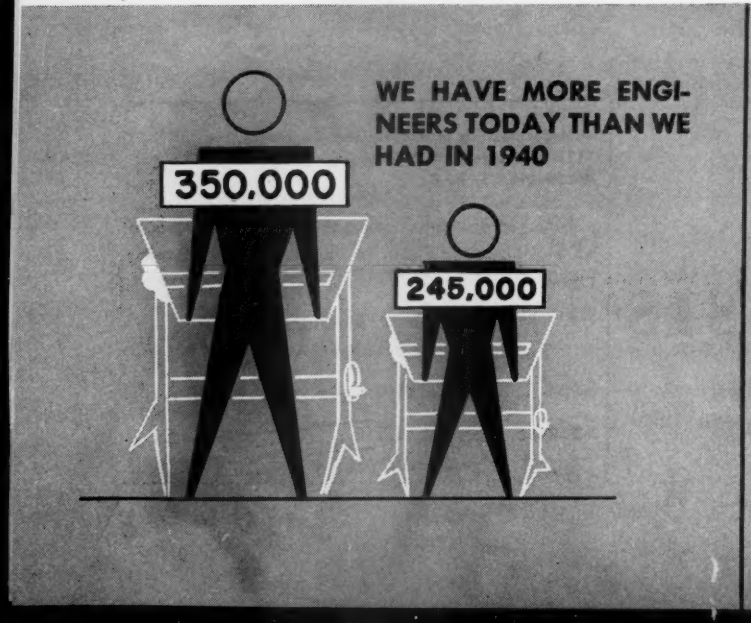
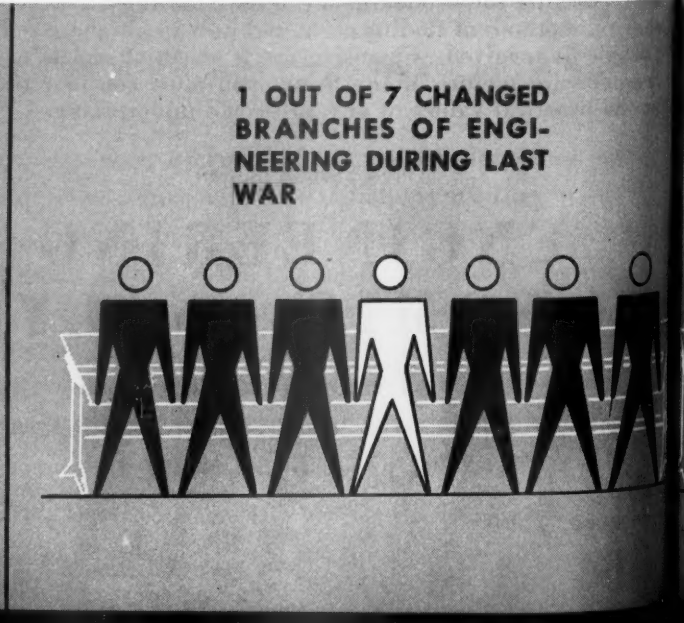
Letter from Washington
Re: The Emergency and Engineers

This past month Washington's official complexion changed from bright to rosy red as legislators and agency heads tried to keep pace with the not so cheerful news bulletins from the Pentagon. It's a period of buck passing at its finest, and to receive a simple, clear-cut "yes" or "no" from anyone in a responsible position is about as likely as Taft and Truman running on the same ticket. Out of all this melee American Engineer writers have attempted, in the report that follows, to interpret the effects of events thus far on the professional engineer as an individual, and the profession as a whole.

If history is prologue at least we can be guided in what prognostication is necessary at this early date. With World War II still a very fresh memory, it is possible to analyze what happened to professional engineers during the past decade, and obtain at least some idea of what can be expected to happen in this partial emergency, and in the event of full scale warfare. Although this is true, it should be borne in mind that the profession's situation today does not, in several important respects, parallel the situation as it existed in 1940. For example in that year there were serious and evident shortages of men trained in certain phases of engineering. This may be less true today as the profession now includes about 350,000 professional engineers as against 245,000 employed and 16,000 unemployed before the war. In other words, the profession as it stands at the present time may be able to cope with a war no more extensive than the last one. But then (and here starts the conjecture) how can anyone know what kind of a war the next one will be or how it will be fought? If any one in Washington does know, and it is seriously doubted that such a person exists, he is not making the information known at this time.

There's still another difference in today's picture as compared with the pre-war one. In 1939 we were just emerging from a shattering depression. Business was slow and engineers were out of jobs. Thousands of others, stuck in unappealing positions during the depression years, were more than happy to try anything new. When war came along,

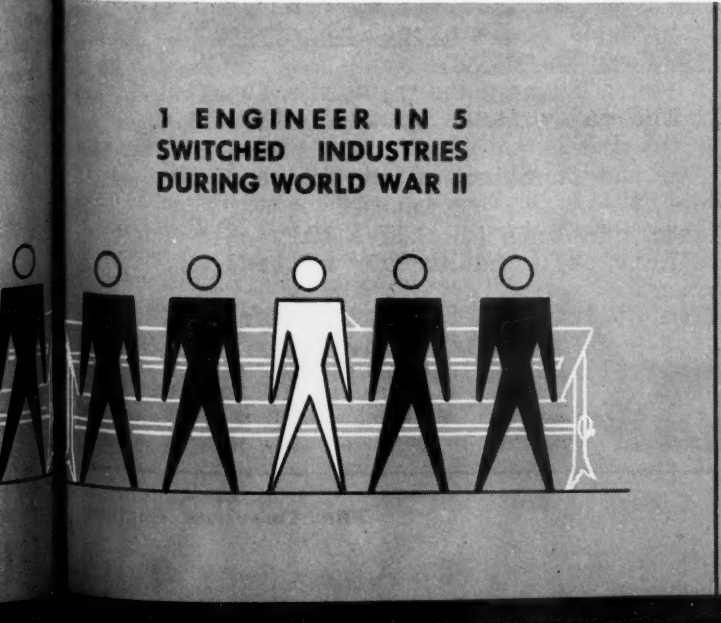


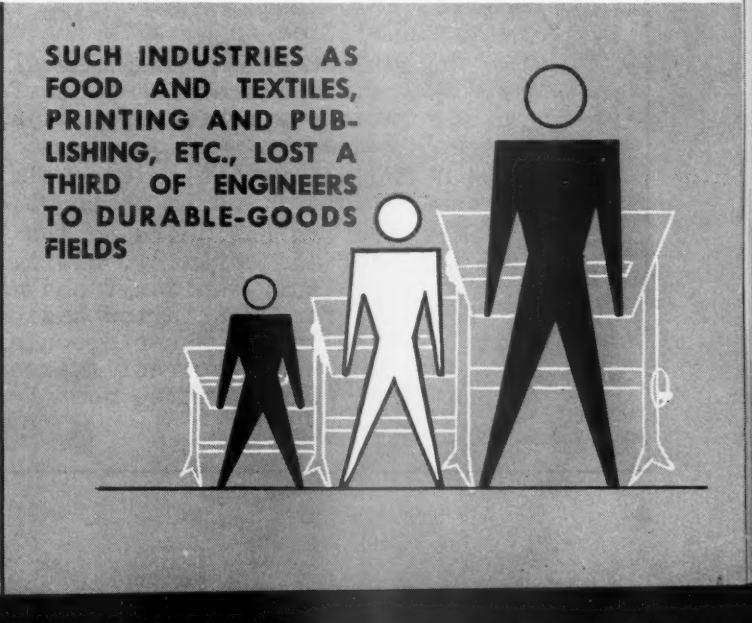


the unemployed and the dissatisfied formed a huge pool from which industry and the government could draw for technical talent. No such pool, at least of any size, is available now. In other words, whereas in 1940 some engineers were available to go here or there or anywhere, such is not the case today. Jobs and good ones are plentiful, and the profession is enjoying an unprecedented prosperity. What is the significance? Well, it could mean that controls may be necessary today where they weren't before. There is, however, no talk of this at the present, but the possibility remains.

Continuing our analysis of what the last war did to the engineering profession, it is interesting to learn that upwards to 14 percent of those in each of the five major branches of engineering in 1939 transferred to another branch in one of the subsequent years. Among these only a small fraction—between 1 and 3 percent—returned to their pre-war fields by 1946. Further, it is found that the greatest degree of stability was shown by those employed in mechanical and electrical engineering. These are the fields in which there was greatest expansion in the need for engineers during the war; those employed in them tended to remain there. Incidentally, civil engineering lost the greatest proportion of men during this period.

Another close look at the war years tells us that the proportion of engineers who were employees of private firms and of the Federal Government increased, while in all other class-of-worker categories there were decreases. There were transfers, too, among industry fields. Pointing up the ability of the profession to adapt to changing industrial demands—particularly in a crisis—is the fact that as a result of expanding war needs, the manufacturing industries claimed a much greater proportion of the engineers during the war period. Aircraft and parts manufacturing drew large numbers of mechanical engineers. The proportion of chemical engineers increased the most in the manufacturing of chemicals and allied products, and the proportion of electrical engineers increased the most in machinery manufacturing. At the same time there were decreases in the proportion of engineers in a number of other fields, notably mining, construction, utilities, and such manufacturing industries as food products and allied products. An overall recapitulation of what happened shows that the greatest degree of stability was found in the communication industry which held 90 percent of its engineers throughout the emergency period. Machinery, chemicals, transportation, and mining held 80 percent of their engineers throughout the period. On the other hand, such industries as food and textiles, printing and publishing, and service industries (such as ventilating and air conditioning installation firms) lost more than a third of the engineers working for them in 1939. When the shifts made by the individual engineers are considered, it appears that about 20 percent were in different industries in 1946 than in 1939.





How can this brief look at the past guide us today? It isn't of much use as things stand at the moment. As long as the Korean affair is localized, and industry is only partially engaged in a defense program, it is quite possible that, by and large, the professional engineer may find no changes in his present life. In some industries such as steel, we are already operating at 100% capacity and whether steel is being used to manufacture refrigerators or tanks does not concern the engineer in that field. The automotive engineer, on the other hand, may find changes occuring as his plant accepts some government contracts for war material. Even a partial emergency should mean more and better jobs, of course. The aircraft industry will increase tremendously. Rubber and other strictly war-time plants will be put into action. Some huge plants such as General Motors say they can double in size if necessary. Yes, there will be changes in this interim period between cold and possible hot war, but they will be rather sporadic as compared to complete mobilization.

What if World War III strikes? Using our analysis of Number 2 as a yardstick, we can draw some conclusions.

We should be better off for engineers, at least at the beginning, than we were last time. This will mean less confusion and fewer "short courses", technical training programs, etc., than we had before. There is a chance though, that in an atomic war, even more engineers will be necessary and steps will have to be taken to get them.

There is somewhat more of a chance this time that engineers will be among those who will be subject to government controls. Last time labor and management saw eye-to-eye on how key personnel should be treated regarding deferment and so forth. Toward war's end, though, public opinion was running high for complete government control over employment such as was done in Great Britain. A new war could bring such regulations into force.

How about the engineer as an individual? If the last conflict is any criterion, chances are 1 out of 7 that he will change branches of engineering before the war is finished. Chances of this are greater if he is now a civil engineer. Again, it's 5 to 1 that he will be in a different industry at war's end. The trend here would be toward durable-goods manufacturing industries. If an engineer is in food, textiles, etc., the odds are 1 to 3 that he will be out of it during hostilities.

At any rate, the present limited emergency and the all too real possibility of war, demands the attention of every professional engineer. That the engineer is a fair haired boy in times of stress has been driven home with force ever since l'affaire Korea. Last month Secretary of Labor Maurice J. Tobin made public a list of critical occupations for the use of the Department of Defense in their future planning. Nearly a third of the list of 32 professional titles involved engineers.

Tobin said: "In the preparation of the list of critical occupations, selection of specific occupations was made on the basis of three major considerations." These were:

(a) The demand, in essential industries and activities for persons qualified to work in the occupations would exceed the total supply under conditions of full mobilization.

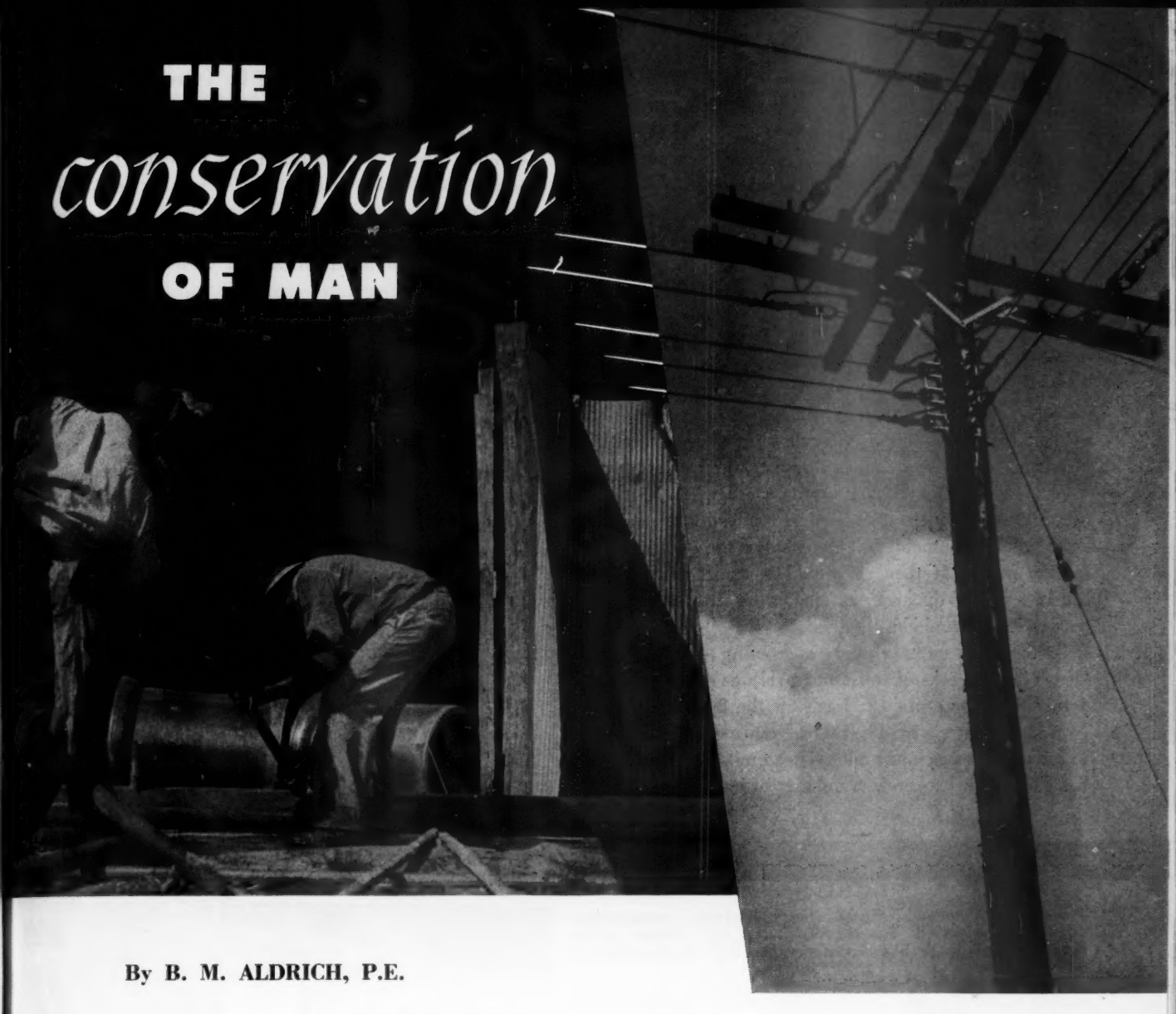
(b) A minimum training time of 2 years is necessary to the satisfactory performance of all the major tasks found in the occupation.

(c) The occupation is essential to the function of the industries or activities in which it occurs.

Here are the engineers on the list: chemical (includes only chemical engineer and ceramic), civil, electrical, industrial, mechanical, mining, petroleum, sanitary, and marine.

So, thus far, Washington has taken at least one positive step. What is to follow is sheer speculation. Whatever happens, the professional engineer can rest assured he will be an important segment of our national effort in the next few years.

THE *conservation* OF MAN



By B. M. ALDRICH, P.E.

HISTORY has it that one Ponce de Leon, well up in the years of his life, and as a result of a legend handed down by the Indians, traveled far in quest of a fanciful fountain of youth. We should not be too critical of this venture for man has ever been in quest of ways and means to extend the years of his life. He has steadily made progress in this direction, though not actually so interpreting his endeavors as such.

According to the psalmist David, "The days of our years are three score years and ten; and if by reason of strength they be four score years, yet is their strength labor and sorrow; for it is soon cut off and we fly away." In spite of all that man has been able to do to the contrary, this age old edict has never been materially altered. The average length of man's life has not yet been extended beyond the three score and ten dead line. Medical advance and the profession have succeeded in gradually raising the curve of mortality to approach this zenith in our country. However, with the average length of life set at about seventeen years for India and about sixty-five years for the United States, there is still much that can be accomplished. While the medical profession has concerned itself chiefly with the addition of years to life's alloted span—the Engineer on the other hand has attacked the same problem from an entirely different angle. Instead of trying to deal with the matter of adding years, he has accepted life's span as being three score and ten and has concerned himself with ways and means to lengthen this life by crowding more into it, crowding more into the years that already exist. The net result of which is to actually conserve life or, thinking from another standpoint, to extend life.

FOR purposes of comparison, let us consider, that man's life span is set at seventy years and that all these years are productive. It is estimated that of this span, twenty-three years are spent in bed, seven years are spent in eating, two years in dressing, five years in traveling, nine years in exercising and amusement, one year in waiting for the mail and two years in nursing diseases. This leaves actually about twenty-one years to be used in gainful production. Now, assuming there are 365 days in a year and twenty-four hours in a day for this useful period, man's life consists of 365 x 24 x 21 or 183960 man-hours.

When the great pyramid of Cleops in Egypt was built, 2700BC, 2,700,000,000 man-hours were consumed. With the use of present improved methods of construction and accompanying machines, a product of the engineers, it is estimated that only 108,000,000 man-hours would have been consumed to accomplish the same task. Based upon these figures it would have taken one hypothetical man 14,677 years to build the

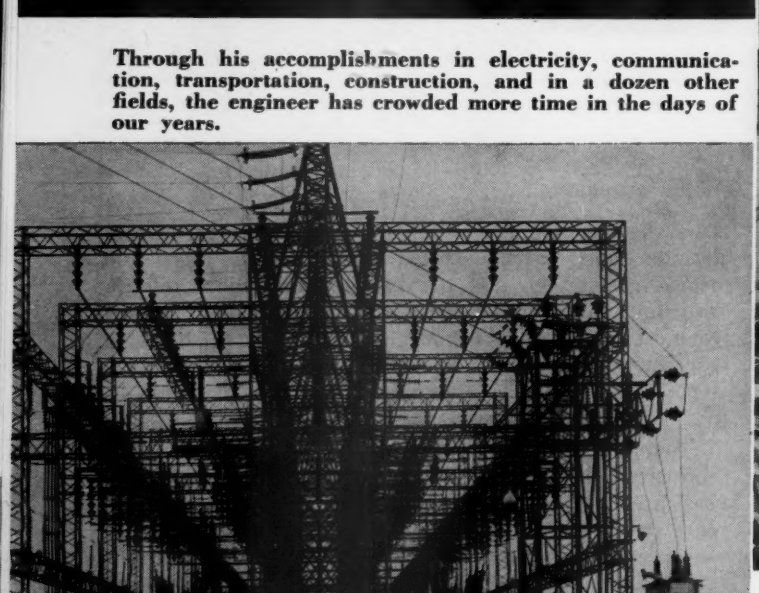
pyramid with the ancient methods but only 587 years if this same man had at his disposal modern equipment and used modern methods. In the consideration of this progress, the engineer has far outstripped his professional brother in the matter of extending man's life by a multiplying factor of some 25 times that existing under the times of the rule of the Egyptian Pharoahs.

Travel Discussed

A similar story can be written for nearly every phase of engineering development. Consider for example, travel. In the old days a great majority of the people then living, never traveled more than 50 miles away from the place of their birth, and this in the course of their natural life. For many even twenty miles would be the limit. By year 1930 an individual traveled on the average of 57 miles by bus, 106 miles by electric train, 216 miles by railroad and 2697 miles by automobile. Many sailed the oceans to visit foreign lands. If then we would measure the length of life in terms of distance traveled, what a tremendous extension in life would be obtained.

In the eighteenth century, a crossing of the Atlantic Ocean in six weeks of constant travel was considered to be a fair time for crossing. Early in the 20th century, the Normandie came from Le Havre, France to New York City in four days, three hours and thirteen minutes. This record has since been broken in a number of instances, by hours.

Through his accomplishments in electricity, communication, transportation, construction, and in a dozen other fields, the engineer has crowded more time in the days of our years.



The French fighting plane of the first world war, had a speed of 120 miles an hour and required an expert to handle it. The second world war saw the development of thousands of aircraft having a speed of 335 miles per hour and a range of 3,000 to 4,000 miles with four tons of bombs in the bomb bay. Since the second world war, planes of special design have far exceeded the speed of sound, long thought to be a natural barrier to speed. Speculations are being made now that the maximum possible speed of travel may approach that of light. This may be contrasted with the records of twenty years ago when man had traveled at the rate of 125 miles per hour by water, 254 miles per hour by land, and 409 miles per hour by air.

Any direction at which we may view our modern civilization we find the same general advance of progress bringing tremendous savings in time which means the equivalent of extending life by years. Communication power developments—travel—all contribute as multiplying factors to extend man's life span, by crowding more into the divinely allotted three score and ten.

Two hundred years ago the maximum speed of communication was seldom more than 20 miles per hour. When Queen Elizabeth of England died at Richmond in 1603, the news of her death did not reach Edinburgh, 400 miles away until 60 hours had elapsed. News of the first shots fired in the American Revolution, at Lexington and Concord on the morning of April 19, 1775, was sent to New York, 225 miles away by the most rapid means of communication, the news reached there Sunday noon, four

days after the firing began. Abraham Lincoln's inaugural address was carried 2,000 miles, from Missouri to California at an average rate of 256 miles per day by Pony Express in 1861. The speed on communication never changed much from the time of the Egyptians, Romans and Colonial travel until Samuel F. B. Morse sent his first long distance telegraph message from Washington to Baltimore on May 2, 1844. From this small beginning the Transatlantic cable service was established July 27, 1866

and on March 10, 1876, Bell sent to his laboratory assistant the first telephone message, the first wire to carry the human voice. The savings in time and space due to these developments as well as the subsequent radio and television is common knowledge and needs no further comment here.

Many years ago, Thomas Carlyle wrote, "Man is a tool using animal. Weak in himself and of small stature, he stands on a basis, at most for the flattest soled, of half a square foot, insecurely enough, has to straddle out his legs lest the very wind supplant him. Feeblest of bipeds . . . without tools he is nothing, with tools he is all."

The development of machines between the years of 1920 and 1928 released approximately two million workers for other gainful occupations. The development and use of machine power and the gradual decline in the use of man and animal power is shown in the following table:

Year	*Man Power*	*Animal Power*	*Machine Power*	*Goods Produced Per Hour*
1850	15%	79%	6%	23¢
1900	10%	52%	38%	47¢
1930	5%	12%	83%	69¢
1960	3%	1%	96%	$1.36

By use of the antiquated sickle, the most grain that man could harvest in a day was half an acre and by the ancient flail, he might be able to thresh out as much as 5 or 6 bushels of wheat in a day. Modern machinery both harvests and threshes in one continuous operation, harvesting hundreds of acres in a day, operating day and night without a respite and with only a minimum amount of human attention. The approximate time taken to produce and harvest 100 acres of corn by the old horse drawn implements of a generation ago was 141 days—with a tractor and its attachments this time period was cut to 51 days.

It is the time saving devices like these that conserve man's life. Devices that provide for him more time for other gainful endeavors, and makes possible the feeding of the nation with a minimum expenditure of time and labor. In colonial days, it took 19 farmers to grow enough food to feed one city dweller. Now, 19 farmers can produce enough food to feed 56 city dwellers and in addition feed 10 people living in other countries.

In the year 1661, man still generated power by the toilsome method of operating a tread mill using human source of strength—climbing ever climbing hour after hour. The then small output could realistically be measured in terms of man-hours, with little chance for much gain in the productive output. Development of machine power changed all this, providing the means by which constant improvement could be realized. Between the years 1910 and 1930, the output per worker in the manufacturing industry gained 39% and that of the agricultural worker 41%. In the last 30 years the actual production output per worker in our factories has increased at the rate of 3% per year. When this figure is converted into equivalent terms of life, it means that men can produce twice as much now, in the course of a life time, as he could 30 years ago. Or if based upon production output, he has accomplished the equivalent of doubling his own useful length of life.

Man has put electricity to work to the tune of some 336 billion KW hours of generating capacity per year—in the United States alone—with a possible 758 billion for the world—this is a staggering amount of energy released for the benefit of man in the short period of his existence. An outstanding accomplishment as shown when we consider that it was only 200 years ago (1752) that Benjamin Franklin sent up his kite to test lightning as a form of electricity.

This country has sufficient potential horsepower to provide every man, woman and child the equivalent of over 100 slaves each to do their work, to make burdens lighter, to conserve their hours of useful life for other endeavors; time to turn to the cultivation of cultural values and to the leisure of good entertainment. And now with the possibility of adapting atomic energy to domestic usage, there is potential energy available to the tune of five million times greater than that produced by the burning of coal. Think what man will be able to do with this great amount of energy at his command and of how much more that can be accomplished in a life time.

Increasing productivity is only one of the many ways of conserving life. When Huygens experimented with the lense as a means of correcting the defects of the human eye, little did he realize how much he was actually increasing man's useful life. Man's eyesight begins to blur and grow dim in the early years of his greatest productivity. The spectacle has done a great deal to add years to his useful life and of extended enjoyment to those whose eyes give way at an early age. As much can be said for the development of the hearing aid, corrective means for defective speech, artificial limbs and many other aids and conveniences closely allied with engineering—but all contributing to the conservation of man, along with the constantly improving modes of travel, communication and other time saving devices.

The Great Age of Advance

We live in a great age of advance and the curve of conservation of man has bent sharply upward during the last decade. Less than 200 years ago (1775) production tools consisted for the most part of the hammer and chisel and were little better than those used in the middle ages. Seventy-five years later, production tools were substantially what we know them to be today. This advance has taken place in every direction we look. Who dares to venture a guess as to what limits the next decade will produce? That is, in case man survives the new modern weapons that may provide the means for his own destruction and lives on to see that day. If he does, you can rest assured that of the developments that take place—the engineer will have a great part.

Civilization has not only realized the great hope of Ponce de Leon but has so greatly outstripped his most fantastic dreams, that we are ready to believe that almost anything is possible, in the years of survival which stretch before the human race.

is engineering a profession . . .

By JAMES F. FAIRMAN, P.E.
Past President AIEE

(Reprinted from Electrical Engineering)

IN discussing the question—is engineering a profession?—it is logical to begin by defining what we mean by a "profession." If we have a common understanding as to what a "profession" is, we may then be able to ascertain whether or not our particular calling is or could become a "profession." In the process we should obtain a clearer conception of what it means to belong to a profession in terms not only of the privileges and rewards, but in terms of the obligations as well.

One suspects that some, if not much, of the confusion which impedes our thinking and acting in all fields of human activity arises from a lack of a common understanding of familiar words, of which that much abused word "democracy" is perhaps the best example. Some of the confusion is due to our carelessness in the use of words, to our tendency to exaggeration and the use of superlatives in the Hollywood manner when under emotional stress or when trying to put an idea across; but some of the confusion seems deliberately to be created for the purpose of confusing or misleading. A familiar example in our own field of activity is the misuse of the word "engineer," sometimes carelessly by the public, but too often deliberately by persons who seek to mislead the public for their own advantage. Deliberate misuse of a word occurs only when the "misuser" hopes to gain some end which he would be less likely to achieve if he relied solely on the merits of his case. So in spite of our annoyance or indignation at the misuse of the term "engineer," we engineers may find some cold comfort in the fact that an engineer must be considered a superior sort of person, at least by that segment of the body politic who try to pass themselves off as engineers.

The Qualities of a Profession

THE dictionaries convey the idea that a profession is an occupation which requires a liberal, if not a specialized, education and which involves mental rather than manual labor; that a profession implies scholarship as in the case of the learned professions of law, medicine, and theology. The fact that these three are generally cited as examples of what a profession is, suggests that service to society or ministry to the people is an important characteristic of a profession.

In this short article I cannot elaborate on this characteristic. The subject has been covered most ably by a number of distinguished members of our own and other professions. If you have not already done so, I urge you to read "The Second Mile," by W. E. Wickenden published in a number of the engineering societies' journals (*EE, May '42, pp 242-7*) and reprinted in pamphlet form, copies of which are still available through engineering societies headquarters in New York. In his opening paragraph, Dr. Wickenden says:

"Every calling has its mile of compulsion, its round of tasks and duties, its code of man-to-man relations, which one must traverse day by day if he is to survive. Beyond that lies the mile of voluntary effort, where men strive for special excellence, seek self-expression more than material gain, and give that unrequited margin of service to the common good which alone can invest work with a wide and enduring significance. The best fun of life and most of its durable satisfactions lie in this second mile, and it is only here that a calling can attain to the dignity and distinction of a profession."

FOR those who may be interested in at least one more reference, I recommend "The Qualities of a Profession," by Vannevar Bush (*EE, Apr '39, pp 156-60*). That deserves a wider reading than I expect it has received. In support of my thesis, I offer this quotation from Dr. Bush:

"In every one of the professional groups will be found the initial central theme intact—they minister to the people. Otherwise they no longer endure as professional groups.

". . . Ministry carries with it the ideas of dignity and authority; it connotes no weakness, and offers no apology. . . . There is no fog of subservience surrounding the concept. The physician who ministers to his client takes charge by right of superior specialized knowledge of a highly personal aspect of the affairs of the individual. The attorney

assumes professional responsibility for guiding the legal acts of his client, and speaks with the whole authority of the statutes as a background. It is in this higher sense that we trace the thread of ministry to the people.

"This is the fuel which has kept alight through many ages the professional spirit. Every time that the fuel has become exhausted, the light has gone out. It has not mattered how much was retained of trapping and mysticism, nor what the profundity of utterances, there has been no true profession that has not with dignity and authority advised and counselled the people, that has not guarded the commonweal. For a true profession exists only as the people allow it to maintain its prerogatives by reason of confidence in its integrity and belief in its general beneficence."

I shall not presume to formulate a definition of the word "profession." I shall content myself with this mention of some of the things it means to me, and I shall hope that it may mean some of these same things to you.

Assuming that you are willing to accept this concept of a profession, let us consider whether or not our particular calling, engineering, is entitled to be accepted by the people as a profession. Let us bring to our inquiry the quality of objectivity which we sometimes claim as if it were the exclusive possession of engineers. Let us have the humility to assume that if we are not understood by the public the fault may be partly our own. In other words, let us make a professional approach to the problem.

Here again, I can only suggest a line of inquiry directed toward finding the affirmative answer which I believe can be made to the question.

A profession requires that its practitioners be educated. Well, engineers receive an intensive education, rather more on the specialized than on the liberal side, to be sure, and of generally shorter duration than the practitioners of the learned professions. It is just possible that engineers would be better engineers and better citizens if they were required to undergo a longer and broader, as well as a more rigorous, training. More of them might be able to get on their feet and talk effectively on those matters affecting the public welfare on which engineers are more competent to speak than many of those who do lift their voices. If more engineers took an active and constructive interest in public affairs, the public might hold engineers in greater esteem. They might more readily recognize engineers as members of a learned profession.

A profession involves mental rather than manual labor. We engineers do most of our work with our heads rather than with our hands. Our intellectual labors are as arduous, our decisions are as difficult, our responsibility for favorable results as heavy as those of the practitioners of other professions. People may sense this but they do not really understand what we do because they do not often see us at work. They do not have, and perhaps never can have, the type of intimate contact with our labors as they do have with the practitioners of more personalized professional services. But we should be clever enough to give the public a more accurate picture of engineers at work than is currently presented in the movies, popular fiction, and the press.

A profession implies scholarship. There is a great deal more scholarship in our fraternity than is generally realized even by ourselves. With a few notable exceptions, however, the public is more likely to associate scholarship with the pure rather than the applied scientist because the light of the latter is so apt to be hidden under a corporate or governmental bushel.

A profession ministers to the people. Engineers minister to the people by their many contributions to the health, safety, comfort, and convenience of the public. Our ministry is just as real, but it is usually applied in providing goods and services for people in the mass rather than personal service for an individual citizen. It is not surprising that the average citizen is more conscious of the "engineer" in the cab of the locomotive than he is of the engineer who designed the locomotive and the many other parts of a modern railroad system by which the citizen is enabled more quickly to accomplish his errand in comfort and safety.

Much of the discussion of the subject of professional recognition by the public which I have heard seems to have been concerned principally with the possible connection between public recognition of engineering as a profession and improved economic status of engineers. It is natural that we should be concerned about our economic status and certainly there is nothing wrong about our trying to improve it. But we must not overlook the fact that the methods we use in seeking to improve our economic status will tell the public a great deal about whether or not we are really professional in our outlook, whether or not we put ministry to the people and devotion to our calling above personal gain. If our aspiration for professional recognition arises principally from our desire for better economic status, we may gain the latter at the expense of the former. We must not expect professional recognition, by some peculiar magic of its own, to produce or guarantee an improvement in our economic position. It will help, but it is only one of a number of factors of equal or greater significance.

Does Engineering Measure Up?

THE line of inquiry which I have touched on in only a most superficial way, suggests that we may reasonably conclude that our calling has the earmarks of a profession, that it has the potentialities of a learned profession, but that whether or not it will be so recognized by the public depends on you and on me, on our ability to overcome some of the handicaps seemingly inherent in our lack of intimate professional relationships with the public, and on whether we look and act as they expect professional people to look and act.

Public opinion is a cumulative thing and is formed as a result of a series of impressions over a period of time. The older professions have set certain patterns by which the public appraises the newer professional groups. In addition to the criteria already mentioned, what would one expect to find as a distinctive mark of a professional group?

(*Continued on page* 32)

The citizens of this community gain respect for the professional engineer aiding them with their city planning project.

Employment Practices of Engineering Firms In Oklahoma

By Mrs. Kathryn M. Fell

A recent survey questionnaire on employment practices currently in use in hiring engineers, draftsmen and surveyors was sent to personnel directors of engineering departments of 100 Oklahoma firms selected from names listed in the Fourteenth Annual Report of the State Board of Registration for Professional Engineers.

The selected firms represented various kinds of engineering concerns in existence in Oklahoma, but not every kind was represented. Most of them were listed in the Fourteenth Annual Report as consulting firms, engineering companies, public utilities, oil companies, exploration companies and engineering supply firms.

Fifty-five questionnaires were checked by the firms and returned to the researcher. Fifty of these were found suitable for inclusion in the study.

The number of employees of the fifty firms ranged from one, in a small consulting firm, to 463 in the engineering department of a large oil company. Age of firms ranged from one year to seventy-five years.

The questionnaire took the form of a check list in which the participants checked answers "Yes" or "No" to a list of sixteen questions. It was recognized that this restricted form of question and answer would limit to a degree the accuracy and scope of the information obtained, but such limitation was deemed not seriously detrimental to the purpose of this preliminary survey; on the other hand, brevity in answering was considered essential in securing participation of the firms in the survey. Some participants appended additional comments to the questionnaire. These are considered significant and interesting and are therefore included in this report.

The project was conceived because of the significance it might have to persons and organizations interested in personnel selection as it applies to the field of engineering. It is recognized that a survey in itself solves no problem. However, gathering facts about a situation is considered a basic step in analyzing it. Further, it may be the first step toward doing something about whatever problems may be inherent within the situation. It is thought, too, that individual firms may benefit from comparing their techniques with those in general practice.

Results of the survey are presented in summarized form with the identities of the participating firms remaining anonymous.

The chart on this page contains a reproduction of the questions used in the survey, together with tabulated answers of "Yes," and "No," and calculated percentages of "Yes" answers.

These figures are deemed to be self-explanatory.

In composing the questions of the survey an attempt was made to include such questions as would elicit information of significance and to exclude those which were deemed of no importance. It is unlikely that this has been fully achieved, but it is thought that in general the information secured by the questions in this preliminary survey may point the direction for further research of a more specific nature.

It is necessary to keep in mind that a categorical answer of "yes" or "no" may fail to reveal significant qualifications. Comments regarding this difficulty were appended to some of the questionnaires by the participants.

Answers to question number one reveal that 60 per cent of the participating firms use an application blank in personal selection. As might be expected it was largely the small firms who do not. In most cases where a blank was used a record of experience was a part of the blank.

The application blank has been the object of some very worthwhile studies in the field of personnel research in the last twenty years or so. These seem to indicate that certain items on the application blank can be as helpful in predicting success on the job as can other devices, such as ratings or interviews, and help improve the worth of the entire hiring procedure. It would be interesting and perhaps significant to know what functions are served by application blanks in the engineering firms using them. For instance, one questionnaire carried this comment: "Every application blank received is supposed to have a notation by the interviewer on the back as to reasons for leaving (when termination has taken place). This helps to find good men in days of pressure.

Ninety-six per cent of firms would be favorably impressed if an applicant had written up and submitted in advance of the first interview such material as personal data, educational and experience records, together with a sample of his work. This should be of interest to prospective employees seeking the most effective approach in securing placement. One questionnaire carried the comment: "Our best employees have usually done this."

All firms interview applicants personally before hiring. This was to be expected in employing this type of personnel, and the question was probably superfluous.

Value of references from former employers has often been questioned by personnel technicians who feel that such references should be accepted provisionally and with reservations. Two-thirds of the participating firms replied that they did use such references, but the answers do not reveal how they regard their use.

About one-fifth of firms has had a job analysis project carried out. Job analysis is a technique which industrial psychologists have spoken of as basic to good personnel selection. It may be defined as a method wherein the duties, requirements, and skills of a job itself are studied in an orderly way. It yields job descriptions and job specifications from which, presumably, the interviewer may work in fitting applicants to jobs effectively. A worthwhile study might be done in which data and opinions would be collected from the ten firms who report having had a job analysis project carried out, with a view to revealing what merit they attach to the use ofthe technique in their own firms. This applies also to the 18 per cent of firms reporting use of written job descriptions and job specifications.

A very meager percentage of firms report use of tests of intelligence, personality, aptitude and knowledge. One-third report use of job sample performance tests. It would be interesting to know to what degree these performance tests are standardized, or if it is thought by those using them that standardization would be desirable. On several questionnaires the

comment was written in that the traits of intelligence, personality, aptitude and knowledge are appraised subjectively and informally by the interviewer in the interview. The question arises as to whether careful objective measurement, in addition to subjective appraisal, might not improve personnel selection and placement. Research concerning what types of tests are used by the firms who report using them and estimates by them of the merit of the tests might prove rewarding.

Nearly half of the firms report making a practice of hiring on a temporary "tryout" basis covering a specified period of time. A study might be made to find out why they do, and why the remaining 52 per cent do not.

An even 50 per cent of firms report that their demand for engineering employees is subject to considerable fluctuation from year to year. A study might be made of which types of engineering firms experience this condition and what effective methods they have found for coping with it. One questionnaire from a consulting firm who answered the question affirmatively carried this comment: "One thing we do which has been valuable in rehiring is to keep a Personnel Rating Sheet" on every employee, with technical and personal characteristics noted in code, and reasons for leaving employ in full on back of the sheet. This helps us to locate good men in time of need.

It would seem that in such a situation, definite attention to building up effective techniques of personnel selection would be of vital importance. Could the State and National engineering organizations be of more help to their members by maintaining an up-to-date "contact" service between jobs for engineers and engineers for jobs?

Seventy-two per cent of firms give applicants estimate on tenure. This question ties in with the fluctuating demand which tends to limit tenure.

Forty-four per cent of firms use part-time employees. This should be interesting to both employers and employees. Perhaps it reflects the problems involved in the fluctuating demand; perhaps it has to do with the lack of availability of qualified full-time employees. A study might reveal a common factor here.

Eighty per cent of firms hire some inexperienced men and train them. How do they select these men? From where do they select them? For what specific jobs do they select them? Answers to these questions should be of interest to applicants.

What sources do engineering firms of Oklahoma use in recruiting applicants? The source used by most participants of this survey was "employees, friends and miscellaneous groups." This was marked by 82 per cent of the firms. Next came "schools and colleges" marked by 52 per cent. Other sources listed were not marked by so many firms; "advertisement" was marked by the least number, 16 per cent. It may be noted that "engineering and other organizations" are used for recruiting applicants by only one-third of the firms. The question comes to mind: could engineering organizations render a more valuable service in this connection than they now do?

Are employers of engineering personnel who participate in this survey entirely satisfied with their present techniques? Two-thirds of them say they are; one-third says they are not.

A pertinent question arises: What

(*Continued on page* 31)

CURRENT EMPLOYMENT PRACTICES IN ENGINEERING DEPARTMENTS OF 50 OKLAHOMA FIRMS

	Yes	*No*	*Percent of Yes*
1. Do you use an application blank?	30	20	60%
2. Is a record of experience a part of that application blank?	30	5	60%*
3. Would it impress you favorably if an applicant had written up and submitted in advance of the first interview such material as personal data, educational and experience records, and a sample of his work?	48	2	96%
4. Are applicants personally interviewed before hiring?	50		100%
5. Are references from former employers usually required?	33	17	66%
6. Do you use any written job descriptions or job specifications in selecting personnel?	9	41	18%
7. Has a job analysis project ever been carried out in your firm?	10	40	20%
8. Do you use any of the following types of tests for selecting personnel:			
a. Intelligence tests?	3	45	6%*
b. Personality tests?	4	44	8%*
c. Aptitude tests?	5	43	10%*
d. Knowledge tests?	8	41	16%*
e. Job sample performance tests?	17	33	34%
9. Do you make a practice of hiring on a temporary "tryout" basis for a specified period of time?	24	26	48%
10. Is your demand for engineering employees subject to considerable fluctuation from year to year due to the nature of the work?	25	25	50%
11. Is the applicant given an estimate of tenure to be expected?	36	13	72%*
12. Do you make a general practice of using some part-time employees?	22	28	44%
13. Do you make a practice of hiring some inexperienced men and training them?	40	10	80%
14. Do you find that qualified applicants are more readily available now than they were a few months ago?	39	8	78%*
15. Do you make a practice of securing applicants through:			
a. Public employment service?	19	26	38%*
b. Schools and colleges?	26	19	52%*
c. Private employment (fee) agencies?	11	33	22%*
d. Advertisements?	8	34	16%*
e. Engineering and other organizations?	17	28	34%*
f. Employees, friends, associates and other miscellaneous groups	41	6	82%*
16. Are your present techniques for personnel employment entirely satisfactory to you?	33	17	66%

*Some of the questions were left unanswered by some of the responding firms.

NEVER STOP LEARNING . . .

The engineer is a member of a profession that prides itself on its scientific, humanistic, and technological achievements, and on the individual responsibility assumed by its members to apply free, resourceful, and unhampered intelligence to the solution of its problems. Our profession includes men of stature—who have never stopped learning or giving—men like "Boss" Kettering and Herbert Hoover. Every young engineer should aspire to professional competence such as they have attained, and the mature engineer—whether industry, government, or teaching—should help him achieve it.

The college, the employer, and the professional society have definite responsibilities in the development of the young engineer, particularly as they can help him to acquire and to maintain healthy attitudes toward his work and toward life in general. How can we cooperate to foster such attitudes? How can we create in him the desire for education as a continuing process upon which his professional growth will depend?

The role of the college is to help the student learn to think and to equip him to go on learning after graduation and to grow throughout his life in professional and personal stature and in usefulness as a citizen. How well the college does its job depends to some extent upon the physical plant, and upon the academic program, but far more importantly upon the quality of the teacher and the quality of the student and the way in which they work together. The inspiration and the example of a fine teacher are the secrets underlying many a man's success. The teacher must want to teach men primarily—not subject matter—and he must have personal characteristics that will command respect and admiration. He cannot teach disciplines pertinent to the student's chosen field without first arousing the interest of the student and then helping him to maintain that interest. If a student likes his work, and if he can be made to see that he learns only from what he himself thinks and does, the problem is simplified, and the young engineer has a good start on the engineering route.

College can give the embryo engineer a good start, but many of the fine influences of college can be lost if the industry he enters does not show a personal interest in his continued development. I firmly believe that in industry, just as in college, the young engineer should be in daily contact with men he can admire and emulate. Perhaps the most significant aspect of training is arranging manpower so that the beginners are intimately associated with those who are skilled and possess the rare ability to teach others. Such relationships do occur in industry—perhaps more frequently by chance than by design—but everything should be done to foster them.

Professional societies have much to offer beginning engineers. They provide an excellent opportunity for young men to mingle—often on an informal basis—with other and older members of the profession, and to learn from them both about technical engineering and about that even more complex engineering task—the task of designing, building and maintaining an intelligent, adjusted life. The young engineer can contribute to his profession and incidentally to his own growth and reputation by writing for professional journals; and by working in the professional societies, he can keep himself constantly aware of the standards, the purposes, and the ethics of his profession.

The engineer - in - training, under proper direction of engineers of fine character and high ideals, can establish healthy attitudes for himself—a set of basic rules to lead him to success in his work and in his living. Those rules might be something like this:

First, he should remember that he is a FREE man working for private enterprise in a nation which makes human freedom its primary concern. He should guard this privilege at all times by his thoughts and by his actions.

Second, he should take pride in himself and in his profession, and should not sell either of them short. He must realize that the engineer is essential, and is responsible for much of the world's progress and for the success of many of our country's largest industries. He must know his possibilities as a member of the profession.

Third, he should be loyal to his company, his superiors, and his associates; give himself completely to every job he does; do more than he is asked—never less. He should fight hard for what he thinks is right, but should learn to carry out the decisions of his superiors if his is overruled. He should give his subordinates a break by defining their tasks clearly, letting them have the authority necessary to discharge their responsibilities, and giving complete and unmistakable recognition to their work.

Fourth, he should try to see the forest as well as the trees. He should spend time not only on his immediate assignment but also on thinking about the long-range problems of his company. His employer knows that he can think, but hopes that he will have vision. The methods he has learned to use on engineering problems are equally applicable to other problems of his company—problems of advertising, selling, accounting, and personnel.

Fifth, he should study people and learn to work with them. Engineers get things done by teamwork. There are fewer and fewer corners for individualists. The young engineer should know the strength of men as well as he knows the strength of materials.

Sixth, he should carefully watch three things—his health, his appearance, and his tongue.

Seventh, and finally, he should always keep in mind that the price of success is hard work; therefore, he should continue to study and learn while he waits for his opportunity to come.

To achieve these attitudes requires constant vigilance. The college, industry, and the professional societies must help the young engineer establish a consistent set of values. If the young engineer wants to be professionally competent, he can do so, but the price is a willingness to learn—work hard and unceasingly—in other words his professional development is a continuing process.

We have a great responsibility to-

ward our young engineers, and it is one of our privileges to be able to serve our profession by serving them. Let us do everything in our power to help them maintain their faith in themselves, their faith in their fellow men, their faith in their profession, and their faith in God. Only thus can they achieve the goal we hope to see them reach, and only thus can humanity benefit and the cause of freedom be advanced.

By Webster N. Jones,
July, 1950, *Civil Engineering*

MUNICIPAL ENGINEERING . . .

It has often been stated that the reason why the public is not more conscious of the engineer and his work is that the engineer does not have quite the same intimate contact with people that exists in the case of other professional men. This argument is not valid when consideration is given to the practice of municipal and city engineering.

No other branch of the profession provides the engineer with a better opportunity of giving good service to the community and enhancing the reputation of the professional engineer in the eyes of a broad cross-section of the public. In fact, it may well be that the majority of people gain their first impression of the work of an engineer by the standard of the engineering work being performed in their respective communities. The taxpayer is naturally very interested in how his dollars are being spent and the engineer is able to exercise a considerable influence with respect to the spending of those dollars; a greater influence than any other civic official. The taxpayer is able to see and to judge the work of the engineer and if that work is good it remains as a permanent record of benefit to the profession as a whole.

Unfortunately, the situation in the province of British Columbia today, is that of a total of some sixty municipalities and cities, only seven cities and eight municipalities regularly employ a professional engineer. The majority employ a superintendent or foreman of works to do this work and some call upon the services of a qualified engineer occasionally. This distinction between the professional engineer and the foreman of works is not recognized by the public. The work performed is engineering work and as far as the public is concerned the work is performed by the "municipal engineer." The standard of the work done, regardless of who does it, is the standard by which the profession is judged.

A study of the tax rates of the municipalities and cities of this province reveals that where the services of a professional engineer are engaged full time, the tax rate is relatively low. It is reasonable to assume that the engineer who accepts such a large share of the responsibility for spending the taxpayers' money can likewise be given proportional credit in effecting such a favorable tax rate.

Generally speaking the municipal officials of the province appreciate the need for competent engineering advice and supervision. Some say they cannot afford to employ a qualified engineer. Except in the case of the smaller municipalities, it may be argued that they cannot afford NOT to employ an engineer. The best way to prove this point is perhaps, for the engineer to accept the salary offered, and then prove his real worth. In the case of the smaller municipalities the solution to the problem appears to be for two or more adjacent municipalities to agree to retain the services of one qualified engineer on some permanent basis agreeable to both parties.

In recent years, comparatively few graduate engineers have been encouraged to enter the field of municipal engineering. In consequence, if every municipality in the province decided tomorrow to employ an engineer, it would be very difficult to find the required number of qualified men. Only by providing graduate engineers with the opportunity to gain the requisite experience now, will we meet our requirements of the future.

The task of working toward an improved standard of municipal engineering in this province is an important one; important to both the engineer and the public. It is a problem that warrants thoughtful consideration and positive action by members of the profession and civic officials.

—British Columbia Professional Engineer, June, 1950

MIND YOUR OWN BUSINESS . . .

Though the phrase, "Mind your own business" is often repeated in a defiant sense it is intended as good advice. But also it is very difficult to follow such a directive. What is your own business? Do you actually have interests that are solely yours and yours alone? In a complex world of overlapping interests and activities it poses quite a problem to designate what is your field that can't be encroached.

In the depressing thirties business men in the early part of the economic depression were prone to gloat because their close competitors quit business and took bankruptcy. Soon they were to find that the same economic forces that contributed to the collapse of their competitor were exerting themselves upon them and they also were faced with economic disaster. What affected their rival now was bearing down upon them. A neighbors' house aflame could catch all the houses in the block.

With that for a preface what relationship has the engineer to the much discussed and controversial socialized medical program now under consideration?

The engineer can look at it from several aspects. One perspective can be from the layman's point of view with himself as the doctor's patient. Another can be from a professional man's attitude as a challenge, not only to the medical profession but to all professions. He can ask himself, if the doctor loses his professional status, can he for long pose as a professional man? Can the member of any profession as a matter of fact? The obvious answer seems to be in the negative. When the camel gets his nose in the tent he soon is in the tent itself. When the hardware merchant fails, in an economic storm, the merchants down the street are vulnerable. When the house next door is burning every house in the block is in danger. It would appear then that socialized medicine is an engineers' problem. It is a lawyers' problem, it is a problem for all professional men.

A picture perhaps to appeal to the engineering mind is to think of modern society as a bridge held up by piers made up of the various functions of American type living, among them the professions. The flood waters (socialism) are raging down the stream or river. The medical profession is one of those piers near mid stream withstanding the terrific force of the turbulent water carrying its plunder with it. The stresses in the pier increase, from this unexpected lateral force, the pier now shows strain and if the force should increase it will give way leaving the other piers (the other professions) with increased stresses far beyond the yield point. Before the flood waters subside all the piers are gone and the bridge has collapsed and fallen into the murky, vicious, raging waters. Not now able to stand on its own but travel where and how the stream carries it. It has no choice in its destination. To hold the bridge in place, all piers must be held intact.

Perhaps the engineer as a patient sympathizes with the allegations brought forth by some of the proponents of socialized medicine, that the

(*Continued on page* 33)

Does This Have a Familiar Ring?

35 Ways To Kill An Association

(Reprinted through the courtesy of the American Trade Association Executives)

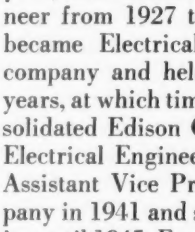
1. Don't come to the meeting.
2. But if you do come, come late.
3. If the weather doesn't suit you, don't think of coming.
4. If you do attend a meeting, find fault with the work of the officers and other members.
5. Never accept an office or committee appointment as it is easier to criticize than to do things.
6. Nevertheless, get sore if you are not appointed on some committee; but if you are, do not attend committee meetings.
7. If asked by the chairman to give your opinion regarding some important matter, tell him you have nothing to say. After the meeting tell everyone how things ought to be done.
8. Do nothing more than is absolutely necessary; but when other members roll up their sleeves and willingly and unselfishly use their ability to help matters along, howl that the Association is run by a clique.
9. Don't bother about getting new members. Let the Secretary do it.
10. When a banquet is given, tell everybody money is being wasted on blow-outs which make a big noise and accomplish nothing.
11. When no banquets are given say the Association is dead and needs a can tied to it.
12. Don't ask for a banquet ticket until all are sold.
13. Then swear you were cheated out of yours.
14. If you do get a ticket, don't pay for it.
15. If asked to sit at the speakers' table, modestly refuse.
16. If you are not asked, resign from the Association.
17. Hold back your dues as long as possible or don't pay at all.
18. If you don't receive a bill for your dues, don't pay.
19. When you do receive a bill for your dues postpone paying until the Secretary writes for the money—then get sore because you've been dunned.
20. If you receive a bill after you've paid—resign from the Association or at least suggest to some of the members that the Treasurer tried to work you or is manipulating the accounts.
21. Don't tell the Association how it can help you, but if it doesn't help you, resign.
22. If you receive service without joining, don't think of joining.
23. If the Association doesn't correct abuses in your neighbor's business, howl that nothing is done.
24. If it calls attention to abuses in your own, resign from the Association.
25. Always think about and don't fail to talk about the "mote" in the other fellow's eye—never consider the "beam" in your own.
26. Keep your eyes open for something wrong and when you find it, resign.
27. At every opportunity threaten to resign and then get your friends to resign.
28. When you attend a meeting, vote to do something, then go home and do the opposite.
29. Agree to everything said at the meeting and disagree with it outside.
30. Always delay replying to communications from the Association, or better, don't answer at all.
31. When asked for information, don't give it, then
32. Cuss the Association for incompleteness of its information.
33. Get all the assistance the Association gives but don't *give* it any.
34. Talk co-operation for the other fellow with *you;* but never co-operate with *him.*
35. When everything else fails, cuss the Secretary.

Selah!

OUR AUTHORS

James Ferdinand Fairman, P.E., (Is Engineering a Profession? —Page 12) Vice President of Consolidated Edison Company of New York, was born in Big Rapids, Michigan. He received his education at the University of Michigan, being graduated with the degree of B. S. E. E. in 1918, and receiving an M. S. in 1921. Mr. Fairman was a member of Sigma Xi and Tau Beta Pi fraternities while at the University. From 1919 to 1922 he was an instructor in Electrical Engineering at the University of Michigan and became Assistant Professor of Electrical Engineering from 1922 until 1925. In 1925, Mr. Fairman joined the Brooklyn Edison Co., Inc., as Outside Plant Engineer for one year, then Assistant Electrical Engineer from 1927 to 1932. In 1932 he became Electrical Engineer for the company and held this post for five years, at which time he joined the Consolidated Edison Co. of New York as Electrical Engineer. Fairman became Assistant Vice President of the company in 1941 and served in this capacity until 1945. From that time until the present, Mr. Fairman has held the position of Vice President. He is a member of NSPE, NYSSPE, and is immediate past president of AIEE.

B. M. Aldrich, P.E., (Conservation of Man, Page 9) registered in Oklahoma, is a member of both State and National Societies. A graduate of the University of Nebraska and now Associate Professor of Mechanical Engineering and member of the graduate faculty at the Oklahoma Institute of Technology, Oklahoma A & M College.



Author of Engineering Experiment Station bulletins and many articles published in state and national magazines. He is a member of the American Society of Mechanical Engineers, American Society of Engineering Education, and Sigma Xi.

LEGISLATIVE REPORT

● As the war economy slowly but surely expands, normal civilian opportunities in production, construction, services, and other fields are shrinking. The effect of this changeover is being felt by professional engineers in both private practice and in production and construction management activities. The effect thus far has been relatively light but at the present time appearances are that the pressures of war mobilization will cause greater reorientation of activities.

In this transitional period many professional engineers are thinking in terms of adjusting their work to fit into the mobilization pattern and are taking steps to make their services and the services of their organizations available for war work. In this connection, the Department of Defense has taken initial steps to prevent a repetition of the experience of the past war when business and professional men descended on Washington to obtain defense production work, generally to no avail.

A joint statement of the military agencies points out that those seeking military contracts or wanting to participate in planning for military production can aid the national defense effort by using field procurement and planning offices of the defense agencies. The agencies warn against coming to Washington to seek information which is readily available in their home towns or in offices close to them.

The military agencies point out that in most cases it is a waste of time and money to seek contracts in Washington as the Army, Navy, and Air Force will continue to do most of their contracting through their field offices. Information on military contract bids and awards is now available at Department of Commerce field offices throughout the country.

The following specific information is listed for the guidance of business and professional persons as follows:

1. For military contracts, go to the Army, Navy, and Air Force field procurement offices. If you do not know these locations, the Munitions Board in Washington or local Department of Commerce regional and district offices will be glad to provide a list.

2. For information on bids and awards go to the military field procurement offices, or to nearest Department of Commerce field office, or to one of the many Chambers of Commerce and other offices which are cooperating in making this information available. The Department of Commerce regional and district offices can give you the name of your nearest information point.

3. Those who want subcontracts should go directly to those who have been awarded prime contracts. Information on contract awards can be obtained at the Department of Commerce field and cooperating offices.

The more complex and large-volume contracts may be made by negotiation, it was pointed out. They will be placed so far as possible with firms which have agreed to production schedules under the production allocation program. Under this program the military services work directly with plants to line up production capacity for complex and large-volume items. Complete information on this program, including locations of field production planning offices, is given in the publication, "Production Allocation Manual." This booklet may be obtained from the Government Printing Office, Washington 25, D. C., at 45c per copy.

The Washington Office of NSPE will be glad to inform members of the location of the Department of Commerce office nearest to them.

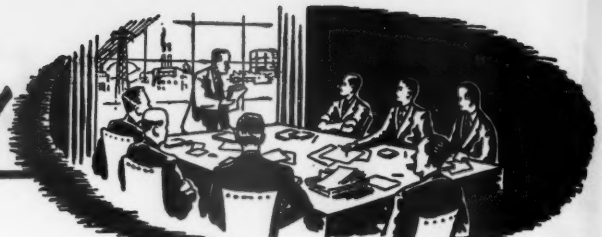
● Typical of the way in which civilian activities are being cut back in favor of defense spending is President Truman's appeal to Congress to hold back on authorizations for highway construction. The President asked the Chairman of the Senate Public Works Committee to scale down the authorization for $620,000,000 approved by the committee for the Federal-aid program next year to the $500,000,000 asked for this purpose in the budget estimate last February. The President criticized the $570,000,000 voted in the House bill and objected to increasing the federal share in the road construction program.

In his letter the President pointed out that the committee's hearings on the road program were held before the invasion of Korea. "Because of the different circumstances which now exist, I would like to ask your committee to consider recommending certain changes in the provisions of this bill, as reported, before it is finally acted upon by the Senate," the President said.

This request is in accordance with the administration's previous action directing all Federal agencies to review their programs looking to modification wherever practicable to avoid competition in goods or services with the rearmament plans.

Another important place where the cut-back is likely to be felt heavily by the engineering profession is the rivers, harbors, and flood control programs. The Senate rejected attempts to cut from sixty to twenty-five per cent, the funds in the appropriation bill for this work, but the President has authority to "freeze" the appropriation. It would not be surprising if the President exercised this authority and impounded a substantial part of these funds in line with his economy-for-war-production policy.

Accent on Activity



TALK OF THE DAY IS WAR and NSPE officials are getting in on the ground-floor on planning in Washington. RECENT DEVELOPMENTS: NSPE Executive Director discusses mobilization of engineers with National Security Resources Board's manpower utilization chiefs . . . Society also asked by NSRB to cooperate in reviewing publications on CIVILIAN DEFENSE to be put out by Board soon . . . Pentagon called Society Hqs. to advise that officer quotas to fill Corps of Engineers ranks will be **DOUBLED** now to fill pressing need.

LATEST PUBLIC RELATIONS NEWS LETTER advises chapters to become civic minded this fall and take active interest in **COMING ELECTIONS.** Theme is that the right men in local posts is as important as a friendly senator in Washington . . . **Campaign to solicit money for PUBLIC RELATIONS PROGRAM** will get full attention of Executive Committee when it meets September 16 in Washington . . . **1949-50 ANNUAL REPORT IS READY FOR PRINTER.** Report gives the full story of what the Society **ACCOMPLISHED** during the year. **EACH MEMBER WILL RECEIVE COPY.** It will be attractive booklet written for easy reading. **IT SHOULD BE "MUST" READING FOR ALL . . .** PRESIDENT TRUMAN has proclaimed the week of October 8-14 to be **Fire Prevention Week.** This annual affair gives engineering profession excellent opportunity for **LOCAL PUBLIC RELATIONS ACTIVITY.** Chapters should plan now to put out publicity releases, give speeches, arrange special programs with civic leaders invited, etc. **DON'T LET OPPORTUNITY SLIP.**

NEW COMMITTEES ARE AT WORK. Leonard White, Registration Committee head, reports his group already considering problems of reciprocity and promotion of legal status of engineers. Also the encouragement of engineers-in-training provisions in all state laws . . . Nominating Committee met at Washington office on August 29 to talk over **nominations for 1950-51 Society officers** . . . Extension Committee Chairman Orland C. Mayer reports **RENEWED INTEREST** of engineering groups in Wyoming, Utah, Oregon, Louisiana, and Delaware in NSPE. AT THE SAME TIME, Vice President C. George Krueger expressed hope during recent conference in Washington that **Northeastern states would soon affiliate with NSPE.**

PACKED SUITCASES: Al Ryan, National Director from Colorado, represents NSPE at dedication of Bureau of Recreation's huge new Engineering Center in Denver . . . **President S. L. Stolte** attends Washington Conference on Aged—designed to discuss their problems. Was engineering profession's representative . . . **Immediate Past President A. G. Stanford** attends meeting of the design professions sponsored by AIA . . . Alex Van Praag, Jr., NSPE's Unity Conference representative, attends another meeting of that group . . . **Executive Director Robbins and Legislative Analyst Lunch** will be featured speakers at Ohio Society's District Conferences this year. Lunch on October 16 and Robbins on October 23.

Offer in this column last month to supply readers with Standard Forms of Agreement Between Engineer and Client brought unexpected response, but **FORMS ARE STILL AVAILABLE FOR THE ASKING** . . . Survey to discover just what products our readers buy or specify has been completed. Information will be used by advertising representatives in selling AE advertising for '51 . . . **NEW AMERICAN ENGINEER ADVERTISING REPRESENTATIVE IN NEW YORK IS THE WARREN T. MAYERS COMPANY.** Mayers, a large, well-known concern, put Look Magazine on its feet advertising-wise . . . This issue contains coupon to be used by firms who want to get on new NSPE list. List to be used in supplying requests for info about engineering companies. **FILL OUT COUPON ON PAGE 34 and MAIL TODAY.**

BOOK LOOKS

Title of Book: Guidebook to Labor Relations Law.

Author and Publisher: Commerce Clearing House, 214 N. Michigan, Chicago 1, Ill. Price, $3.00.

Since professional engineers and employers of professional talent have become aware of their lack of immunity to the pressures and influences of the labor movement there has been a growing interest in learning more about the origins and workings of the labor law. A number of good books have been published in recent years which are valuable for those seeking an understanding of modern labor relations in operation.

This new book by the staff of Commerce Clearing House is an excellent short work in understandable terms. It presents valuable historical background and is up-to-date on the latest administrative and court rulings. It covers primarily the Taft-Hartley Act and other current labor laws in the federal area and specifically deals with such important topics as professional employees, coverage of contractors, domination of labor unions by employers, discrimination by unions, bargaining units and elections, injunctions, etc. The book is well indexed and should provide a valuable handbook for those who need or desire information on the why's, do's, and don'ts of labor law.

Title of Book: Sourcebook on Atomic Energy.

Author: Dr. Samuel Glasstone.

Published by: D. Van Nostrand Co., New York. Price, $2.90.

This book is a 450-page treatise on the non-secret scientific and technical aspects of atomic energy, particularly suitable for use by college students and teachers. The author has been a professor of physical chemistry in several American and English colleges and has written many college textbooks on physical chemistry, thermodynamics and related subjects.

Title of Book: Fire Protection Through Modern Building Codes.

Author: B. L. Wood.

Published by: American Iron and Steel Institute, 250 Fifth Avenue, New York 1.

This book is a discussion of basic fire risks and fire safety considerations and a compilation of authoritative factual data relative to the safety of the fire hazard prevailing in various occupancies. It also contains recommendations for rational regulatory procedures to provide adequate safeguards against these fire hazards, without imposing unwarranted penalties on building construction. The recommendations contained in this volume follow the modern concept of fire protection, i.e., to provide fire protection in a degree comparable with the severity of the fire hazard involved in the occupance or use of the property.

Title of Book: Business Management and Economic Analysis.

Published by: This is a report by the Chamber of Commerce of the U. S., Washington, D. C. Price, Single copies, 25c.

The theme of this booklet: In a time of international strain, the American business executive needs to know how his own operations will be affected. It's good reading for the engineer who is in business, or who is interested in how recent events will affect his industry, etc. The report states that business faces a long period in which production, marketing and financing will be chronically subject to disturbing international forces. It stresses the value to business of having staff specialists assist management on the "economics front." That is to say, a business needs expert advice on the complex connections between the performance of the firm and the performance of our economic system as a whole.

Title of Book: How To Raise Real Wages.

Published by: Committee for Economic Development, 444 Madison Avenue, New York 22. Price, single copies free, additional copies, 35c.

This is a statement issued by the CED, a non-profit organization supported entirely by voluntary contributions from business concerns. Its purpose is to help determine through objective research those economic policies that would encourage the attainment and maintenance of high production and employment within the framework of a free society. This booklet on wages, of course, carries forth this policy. The piece points out that an hour's work of an average employee today can buy more than three times as much in goods and services as an hour of work 50 years ago. This increase in real wages—what money wages can buy—amounts to about 2½ per cent per manhour each year. Broadly speaking, real wages determine how well workers are able to live. Hence, the problem of raising the standard of living of wage earners is primarily one of raising real wages. The booklet goes on to tell why real wages have risen in the past, ways to increase output, and ways to raise real wages in the future.

Title of Book: The Effects of Atomic Weapons.

Published by: Atomic Energy Commission. Price, $1.25 at Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

This book has only been out a few weeks but the amount of publicity it has obtained is tremendous. Because of its popular appeal title, some predict it will soon be on the "best seller" lists. A close look at the book, though, shows it to be a pretty technical piece of work for the average layman to digest. He may find some of the photographs of interest, but most of them have been used before in mass circulation magazines. Conversely, the professional engineer may derive much benefit by reading the publication. For general knowledge of the Bomb, or as a textbook for the engineer engaged in civil defense work or the like, the material is of great value.

Other Recently Published Books

SCIENTIFIC RESEARCH, ITS ADMINISTRATION AND ORGANIZATION. *Edited by George P. Bush and Lowell H. Hattery.* American University Press, Washington, D. C. Price, $3.25.

HANDBOOK OF AERIAL MAPPING AND PHOTOGRAMMETRY. *By Lyle G. Trorey.* Cambridge University Press, 51 Madison Avenue, New York 10. Price, $5.00.

CIRCUITS IN ELECTRICAL ENGINEERING. *By Charles R. Vail.* Prentice-Hall, 70 Fifth Avenue, New York 11. Price, $7.65.

BASIC REINFORCED CONCRETE DESIGN. *By G. E. Large, C.E.* The Ronald Press Co., New York.

PROPERTIES OF METALS AT ELEVATED TEMPERATURES. *By George V. Smith.* McGraw-Hill Book Company, New York. Price, $7.00.

MUNICIPAL AND RURAL SANITATION. *By V. M. Ehlers and E. W. Steel.* McGraw-Hill Book Company, New York. Price, $6.50.

MECHANICS—A TEXTBOOK FOR ENGINEERS. *By J. E. Boyd and Percy W. Ott.* McGraw-Hill Book Company, New York. Price, $4.50.

TO THE *Editor* ...

Critique . . .

► The letters below are in response to an item in the last issue requesting honest opinions on the editorial content of the magazine. —*Editor.*

Dear Editor:

THE AMERICAN ENGINEER has, in my opinion, improved tremendously. . . . Your editorial on our emphasizing our weaknesses and not our strength was all to the point. Who ever heard a manufacturer going out and saying, "Well, our product has such and such defects"?

M. ALBERT GERWIG, P.E.,
North Hills, Pa.

Dear Editor:

. . . my opinion is that the material presented in the magazine usually is well balanced and interesting and important to the members of the profession. Possibly there is a little too much repetition in articles treating professional attitude, the engineer in the community and in politics, etc. However, I must admit that I would rather see this angle overemphasized than underemphasized.

A. M. SCHLICK, P.E.
Bloomfield, N. J.

Dear Editor:

. . . The magazine not only awakens the consciousness of professional unity in the engineer but is highly educational to him. Articles such as "Engineers Can Promote International Understanding," "It's Time to Bridge the Technology - Political Chasm," etc., are most stimulating to the engineers whose potentialities, as very important factors in the organization and economy of our country, and of the world, have been lying dormant. . . .

J. B. CALVA, P.E.,
Minneapolis, Minn.

Dear Editor:

. . . I enjoy reading member chapter activities and the many fine editorials which all is of good educational value—so you and your staff deserve a lot of credit, and those who don't read it are only hurting themselves. . . . I look forward to receiving the AMERICAN ENGINEER.

ERICH B. UTESCHER, P.E.,
New York, N. Y.

Dear Editor:

. . . Although there has been considerable improvement in the publication, it still lacks the power to draw one into reading an article or item. Frankly, I have shot my bolt in this respect.

However, I feel that it could serve a useful purpose if some sort of placement (employment) service could be incorporated. If this could be included at no cost, or at a very small cost to the members, it would certainly be an incentive and a selling point for getting more members.

. . . if the organization has accomplished anything of a tangible nature, I suggest that the accomplishments be listed in large type near the front of each issue. Also the aims of the organization.

FRANK E. REEVES, P.E.,
Baton Rouge, La.

Dear Editor:

THE AMERICAN ENGINEER should be devoted primarily to these main objectives: (1) establishing and maintaining ethical practices among Professional Engineers, (2) improving the public relationships of Professional Engineers, and (3) improving the economic status of Professional Engineers. THE AMERICAN ENGINEER has a newly recognized task, but a very important one, that of fostering unity among Professional Engineers.

I think our magazine should stress the need for and point out ways to accomplish unity among Professional Engineers. The report on professional unity which was presented in the July, 1950, issue of the AMERICAN ENGINEER was very much appreciated. I think we should soon have an Association (or whatever you may wish to call it) that will be equivalent to the American Medical Association and American Bar Association. I believe that our magazine can do much to foster such unity among Professional Engineers.

The editorials and articles which appear in the AMERICAN ENGINEER are well selected and present a balanced program. Your editorial efforts are rewarded in the form of a truly professional magazine for professional men.

H. VERNON SMITH, P.E.,
Houston 18, Texas.

► We thank all our readers who took the time to write us, and we would like to hear from many more. Letters are published only if permission is given.—*Editor.*

Southpaw? . . .

Dear Editor:

Did the man who made the halftone cut on page 11 of the August issue of the two engineers at the drawing board, one with a ruling pen and the other with a pencil, reverse the negative purposely, or were both individuals actually left-handed?

R. H. BARCLAY, P.E.,
New York, N. Y.

► The negative was not reversed. Note that shirts and sweaters button properly. Also, shirt pockets are on the side they should be.—*Editor.*

The Refresher Course . . .

Dear Editor:

Kindly permit me to comment on the value of the "Refresher Course," as an aid to registration and a means of determining professional qualifications.

It appears that we are imposing an injustice on the engineering profession by trying to sustain the high standards of qualifications.

These standards are maintained only by the medium of an examination so formulated, to determine the ability of creative and analytical thinking. These qualities are not developed by a ten weeks course in science and mathematics, but by years of intensive training and experience in the practice of engineering.

T. J. PEIFFER, P.E.,
Pittsburgh, Pa.

August Cover . . .

Dear Editor:

. . . I liked the cover on the August Issue. The sign in the background behind President Sidney Stolte sums up in a few words the things we are all trying to do something about. I was happy to see "public service" at the top of the list. In times like these it should be our first consideration. . . .

J. H. HEMY,
Earth Stone, Minn.

Around The Nation With Our Members

Dr. Van Leer, Georgia SPE, Named Member of Civil Service Group

Dr. Blake R. Van Leer, P.E., President of the Georgia Institute of Technology, Atlanta, Ga., and a member of NSPE, has been named to the new Advisory Committee on Engineering to the United States Civil Service Commission, according to an announcement by Mr. Harry B. Mitchell, chairman of the Commission. The Georgia educator and engineer was suggested for this important position by the Engineers Joint Council, national body of the engineering profession.

The new committee was formed at the suggestion of the Council and in line with the Commission's own desires for the purpose of seeking advice as needed on matters affecting position classification standards, recruitment qualifications, and promotion policies as related to engineering personnel. Mr. Mitchell points out that the committee will be of great assistance to the Commission for the solution of problems in the employment of engineering personnel that is challenging the resourcefulness of everyone responsible for Federal personnel administration.

The objectives of the new committee, as stated by Mr. Mitchell, are as follows:

1. To recommend to the Classification Division and to the Examining and Placement Division changes in practices, policies, or procedures which it is believed will place the recruitment, placement, and development of engineering personnel on a sounder basis;

2. To explore with the Commission implications of major changes in the field of personnel administration, as they affect professional engineers and related types of personnel;

3. To advise the Commission on programs and plans designed to improve Federal personnel administration of engineering personnel through a better understanding on the part of officials, employees and citizens of the problems and purposes of the Federal government's merit system;

4. To advise the Commission's two divisions previously mentioned in the determination of policies and programs for filling adequately key engineering positions, and with the problems of bringing into and keeping in the Federal service the type of engineers which it must have if its work is to be performed efficiently;

5. To assist the two divisions in their efforts to develop programs designed to improve the competence of administrative and supervisory personnel dealings with engineers and associated employees; and

6. To provide the Commission with objective appraisals as to the effectiveness of the operations of the two divisions so far as they affect the recruitment, placement, promotion, retention and development of engineering personnel in the Federal service.

Dr. Van Leer, member of the new committee, is a registered professional engineer in the states of Florida, North Carolina and Georgia. He is an honorary member of the Georgia Engineering Society, and holds membership in the American Society of Mechanical Engineers, American Society for Engineering Education, Society of American Military Engineers, Florida Engineering Society, North Carolina Society of Engineers, Georgia Society of Professional Engineers, National Society of Professional Engineers, Tau Beta Pi, Sigma Tau, Sigma Xi, Pi Tau Sigma, Eta Kappa Nu, Omicron Delta Kappa, Alpha Tau Omega and Newcomen Society.

An army reserve officer for more than 30 years and a veteran of World Wars I and II, he holds a reserve commission as a colonel in the Corps of Engineers and is commanding officer of the 3107th Research and Development Unit (Reserve) in Atlanta, Ga. In May 1950, he was named by Secretary of Defense Louis Johnson as a member and chairman of the special committee which is to recommend to the Department of Defense a site for a $11,000,000 quartermaster research and development laboratory.

Daytona Beach To Establish Public Library

The Daytona Beach Chapter, Florida SPE, is contemplating establishment of an engineering library. Officials pointed out that legal and medical libraries mean so much to those professions—why not engineering libraries? Law libraries are so well thought of by the public that they are often maintained in municipal buildings, with much of the cost borne by the public. Law libraries provide a most practical and convenient meeting place for the legal profession.

Every effort should be made to establish more common meeting grounds for the engineering profession, the chapter believes. Space is available at the Daytona Beach City Hall or at the Public Library for our use. Consideration is also being given to the establishment of an engineers' club room in conjunction with the library. It is hoped to develop some feasible cooperative plan for financing a club room.

Let Us Know What YOU think About YOUR Magazine

***The American Engineer* is your professional journal. It is one of the largest publications that concerns itself exclusively with the professional aspects of engineering. Because we are pioneers in a sense, we like to be told now and then that we are or we aren't giving our readers what they want.**

You would be doing us a real service if you'd take a few moments now and really study this issue. Then, in a few words, on a postal card if you like, let us know what you think.

Your communication will NOT be published. Thanks!

Just Write:

The Editor,
American Engineer,
1121 15th St., N.W.
Washington, D. C.

Left to right. On the left, front row: C. N. Wiley; J. C. Beach; F. M. Hill; F. J. Trowbridge. Back row: J. H. N. Roberts; A. E. Cooke; P. L. Davis. On the right, front row: P. L. Davis; C. N. Wiley; J. L. Harkness; J. C. Beach. Middle row: E. J. Nesbitt; L. Lichtenstein; L. M. Reed; J. H. N. Roberts; G. J. Nicastro; A. E. Cooke; J. N. Coel; G. N. Brown. Last row: F. M. Hill; J. W. Shallenberger; Max Davis; F. J. Trowbridge; E. W. Broggrafe; E. J. Panish.

Above left to right: G. N. Brown, E. W. Borggrafe, P. Lloyd Davis, E. J. Panish.

Connecticut Society Meets In Bridgeport; Elects Officers

The Connecticut Society of Professional Engineers held an annual meeting at the Hotel Barnum in Bridgeport, Connecticut, recently at which the election of the following new officers took place.

President	L. Morton Reed, P.E.
1st Vice President	G. J. Phelan, P.E.
2nd Vice President	Fritz H. Gometz, P.E.
Secretary	L. Lichtenstein, P.E.
Treasurer	E. S. Osteyee, P.E.
Auditors	G. N. Brown, P.E.
	G. M. Dmitroff, P.E.

The meeting was attended by representatives from the three chapters: the Hartford County chapter, the New Haven County chapter, and the Fairfield County chapter, which was host. General chairman of the meeting was Carl Gotthardt, P.E., who was assisted by G. N. Brown, P.E., Secretary of the Fairfield chapter, and E. J. Nesbitt, P.E., State Director.

Simultaneous with the business session a card party and tea, at which Mrs. Brown was chairman, was held for the ladies. A cocktail hour preceded the banquet at 7 p.m., at which Mr. G. J. Nicastro, P.E., Past President of the New York State Society, was principal speaker. The banquet was enlivened with songs by Hal Yates and dancing followed. All who attended reported it one of the most congenial state meetings held in recent years.

One of the novelties was a personal invitation sent by Mrs. Brown to the wives of all of the members, inviting them to the card party and tea.

Above left to right: J. L. Harkness; E. J. Panish; E. J. Nesbitt; G. N. Brown; J. W. Shallenberger; Max Davis; E. W. Borggrafe. Below left, left to right: Col. J. D. Skinner, Mrs. Skinner, L. Lichtenstein, Mrs. Lichtenstein, L. M. Reed, Mrs. Reed, G. J. Nicastro, Mrs. Osteyee, E. S. Osteyee. Ladies on the right include at the front table: Mrs. E. J. Nesbitt; Mrs. E. S. Osteyee; Mrs. Hill; Mrs. J. N. Coel. Table left rear: Mrs. J. L. Harkness; Mrs. A. E. Cooke; Mrs. E. J. Panish; Mrs. E. W. Borggrafe. Table right rear: Mrs. J. W. Shallenberger; Mrs. L. Lichtenstein; Mrs. Hill; Mrs. G. N. Brown.

Illinois Society Awards Honorary Junior Memberships

Each year the Illinois Society awards Honorary Junior Memberships to two men from each of the four colleges of engineering in Illinois.

"The Illinois Society is proud to welcome these outstanding young men into the organization. They can contribute much toward furthering Society aims and they will gain much by their work and association in the Society. The key to the future is held by youth and the future looks bright with the key in such capable hands," Dr. George E. Ekblaw, P.E., society president said.

The following have been elected:

Walter Duane Reeder, Eldorado, Illinois, Aeronautical, U. of I.

Donald Albert Straznickas, Rockford, Illinois, Mechanical, U. of I.

Gilbert Rice Carl, Lincoln, Illinois, Mechanical, Bradley University.

James Richard Rakow, Elgin, Illinois, General Engineering, Bradley University.

Leslie C. Hardison, Chicago, Illinois, Mechanical, Illinois Technological Institute.

Ernest W. Nordquist, Glenview, Illinois, Civil Engineering, Illinois Tech.

Robert Frank Mahood, Kansas City, Missouri, Electrical, Northwestern Tech. Inst.

Robert Lewis Pasek, Chicago, Illinois, Mechanical, Northwestern Tech. Inst.

It is interesting to note that there is one civil engineer, one aeronautical, one electrical, one general and four mechanical engineers. This might indicate that there is an increased interest in the Society among mechanical engineers.

Also it should be noted that James Rakow is no stranger to the Society—he has been a student member since 1948; and his father, W. A. Rakow, P.E., is a national member from the Dukane Chapter.

Calif. Court Holds City Engineer Must Be Registered

A California court has ruled that a City Engineer must be a registered civil engineer under the State's registration law.

Justice Lathrop E. Smith of San Gabriel Court handed down the ruling in a case involving Tadeus E. Erbe, employed by the City of Monterey Park as "City Engineer" despite the fact that he had no formal civil engineering training and claimed none. The court proceedings showed, moreover, that both the city manager and the Monterey Park city council knew when they hired Erbe that he was not a registered civil engineer.

Introduced as part of the evidence were a subdivision map and a plan and profile map which Erbe had "approved" in his capacity as city engineer.

There was no other evidence that the defendant had practiced engineering, but on the testimony of two other city engineers—from Alhambra and San Gabriel—that the use of engineering skill was involved in the two maps, Erbe was found to have been practicing engineering illegally. Justice Smith also ruled it was illegal for a city to employ a non-registrant as city engineer. If a city engineer practices any kind of engineering, his decision read, it is most certainly civil engineering, and if a city employee does not practice civil engineering, then he should not use the title "engineer" at all.

"The citizens of a city are entitled to rely on the certification or approval of their city engineer as having some meaning and as being of some protection to their lives, health, property and welfare," the court's decision said. "If the city engineer has no engineering skill, the court feels that its citizens in effect are being misled, even if the city manager and city council are aware of the fact that the city engineer in truth and in fact has no engineering skill."

Northeast Texas Chapter Meets

The Northeast Texas Chapter, TSPE, held its regular meeting at the Hagood Camp, near Paris, Texas, with a barbecue and refreshments as the principal business at hand.

Not only was the outing a thoroughly enjoyable affair, but some chapter business was conducted in the informal atmosphere.

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Summer Meeting Held In Augusta By GSPE; Plant Tour Is Highlight

The fourth annual summer meeting of the Georgia Society was held recently at the Bon Air Hotel in Augusta, Georgia.

One of the more interesting aspects of the convention was a guided tour of inspection of the Clark Hill dam that is under construction twenty miles up the Savannah River from Augusta. After this informative tour, the Corps of Engineers gave a complete resume of the project and the work in progress. The tour was followed by a picnic supper, and then a "Splash Party" was held which included dancing and bingo.

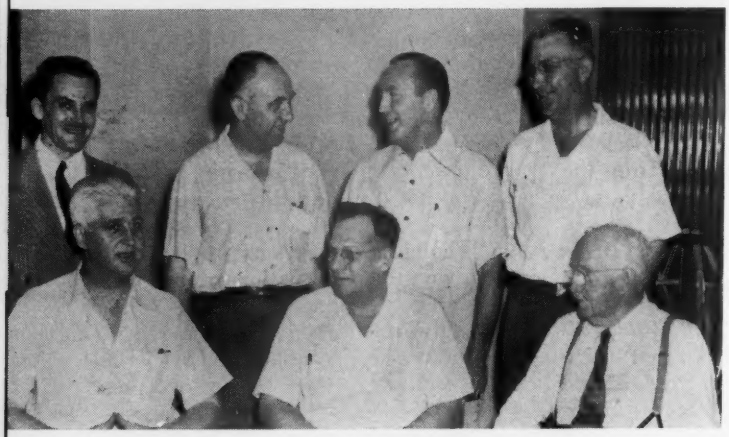
After a business meeting on the second and final day of the meeting, the men were taken on a tour of the Augusta works of the Babcock & Wilcox Company to see a modern refractories manufacturing plant. Approximately 40% of all the insulating fire-brick used in this country is manufactured in this plant.

While the men enjoyed this tour, the ladies were conducted on a tour of historical Augusta under the direction of Mrs. Mary Carter Winter, a member of the editorial staff of the Augusta *Chronicle*.

The closing point of the convention was a banquet in the beautiful main ball room of the hotel, followed by entertainment and dancing.

The Northwest Chapter of GSPE will conduct the next annual outing and Lookout Mountain, Georgia, is the probable location.

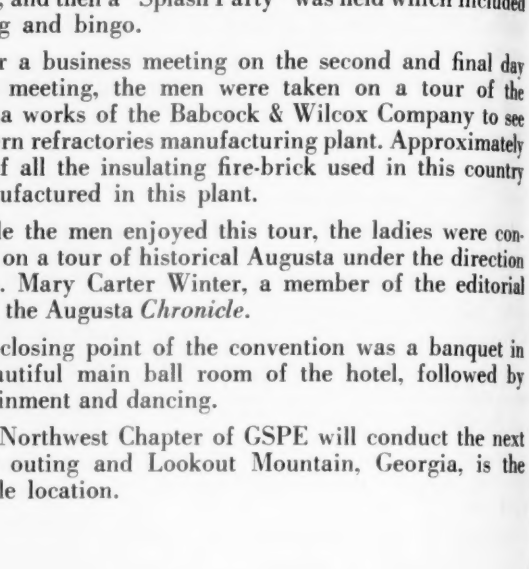
Below. **Back Row, l. to r.: Donald B. Beach, P.E., Past President, GSPE; George M. Normandy, P.E., Secretary, GSPE; Hugh A. Groves, P.E., General Chairman of the Summer Meeting, GSPE; Arley R. Walker, P.E., Treasurer, GSPE. Front Row, l. to r.: Raymond J. Gauger, P.E., President, Augusta Chapter, GSPE; Alan G. Stanford, P.E., Immediate Past President, NSPE, and Dr. Roy S. King, P.E., Director, GSPE.**



Below is a photo of the group visiting a refractories manufacturing plant.

A banquet scene is shown below. Lady in center with dark dress is Mrs. A. G. Stanford, wife of NSPE's immediate past president.

Directly below is shown one of the groups on the plant tour. (l. to r.) Unidentified; A. E. Logan, P.E., Bob Matson, P.E., John Lovell, P.E., and Arthur Lovell, P.E. Below, left: Miss Susan Gauger, Ray Gauger, P.E., President, Augusta Chapter, Mrs. Ray Gauger, and Mrs. Fred Bellinger.



Tragedy in Phoenix Prompts Society to Action and Results

In Phoenix, Arizona recently, a windstorm tore out an 80 foot section of a 20 foot wall of a new building under construction. Some of the building blocks fell into a nearby rear kitchen, crushing a 62 year old woman to death.

Members of the Central Arizona Chapter of the Arizona Society, located in Phoenix, took immediate action. In a letter to the Mayor and City Council, President Walter A. Burg, P.E., expressed the concern of the engineering profession over "what may have been a needless death," and urged prompt investigation before the evidence was disturbed. President Burg also offered to appoint a Board from the membership of the Central Arizona Chapter to investigate and report on the facts concerning the collapse of the building wall.

K. K. King, Director of Public Works for the city of Phoenix, accepted Mr. Burg's offer to appoint a Board and authorized him to make the investigation and report in cooperation with the City Building Inspector. The following Chapter members were appointed to serve on this Investigating Board: Professional Engineers James E. Hastain, Chairman; John E. Stephens, Hanen H. Williams and Martin Toney.

The Investigating Board inspected the collapsed wall and compared it, as built, with the plans and specifications submitted to the Building Inspector's Office when the permit was obtained. They found hollow concrete blocks to have been used instead of the called-for brick, and also the absence of masonry pilasters and wall anchors which had been submitted in the plan.

An open hearing was held in the City Council Chambers at the Phoenix City Hall with the principals and members of the Investigating Board present. In addition, the Board submitted a report to the Mayor and City Council of Phoenix which covered not only the causes for the wall failure but also made recommendations to prevent future building failures.

A stop order on all construction of the involved building was called by the Building Inspector's Office. As a result of the investigation the owner was ordered to tear the building down and rebuild according to the plans and specifications which were filed and approved by the City.

Philadelphia's Nesbitt Appointed Chairman of United Fund Campaign

Albert J. Nesbitt, P.E., president of John J. Nesbitt, Inc., and member of the Philadelphia chapter of the Pennsylvania Society, will be general chairman of Philadelphia's first United Fund campaign, to be conducted in the fall.

This appointment was recently announced by Revelle W. Brown, president of the newly-created United Fund, which was established to meet the increasing problem of many individual fund-raising campaigns.

In accepting the office of general chairman, Nesbitt said: "The United Fund is a vehicle through which contributors in industry, business and public service can help meet their share of many of our health and welfare needs through one unified campaign."

Nesbitt is a director of the Northeast National Bank of Philadelphia, and a member of the American Society of Heating and Ventilating Engineers, and the National and Pennsylvania Societies of Professional Engineers.

William A. Toperzer, P.E., president of the Pennsylvania Society, said in a congratulatory letter to Nesbitt, "You are to be congratulated on your courage to accept such an appointment in which there will be a tremendous amount of work involved with little or no reward except the satisfaction of having done a good job. Good luck and may your efforts be crowned with success."

Torperzer added, "We are happy also that you, as a Professional Engineer and especially as a member of Philadelphia Chapter, have agreed to give of your talents to a worthwhile civic enterprise. This is something that we as engineers have been reluctant to do in the past, but we are gradually awakening to our responsibilities."

McClintock Honored By ASHVE

William McClintock, P.E., member of the New York Society of NSPE, was one of eight engineers elected recently to be Life Members of the American Society of Heating and Ventilating Engineers.

Mr. McClintock, who is Mechanical Engineer for the Kellex Corporation in New York, has spent his lifetime in the field of engineering design, and holds 15 patents covering heating, ventilating and fire protection work.

Born in Glasgow, Scotland, McClintock received his schooling in Scotland and the United States. Examples of his work may be found in various parts of the United States, Greece, Albania and Turkey.

Much of McClintock's early experience was in the railway field. Later, he worked with the U. S. War Department as a mechanical engineer, and for the Board of Education in New York City. During World War II he worked on projects connected with the Atomic Research Plant at Oak Ridge, Tennessee.

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Northeast Chapter Meets In Georgia

An interesting and successful meeting was held by the Northeast Chapter of the Georgia Society of Professional Engineers recently at the Avon Court in Gainesville.

The business session was conducted by President Thomas H. Hassey, P.E. Members attending from the outlying sections of the district included Engineers J. L. Bracewell of Toccoa, James L. Groves of Canton, George Dewey Bailey of Athens, Robert A. Dean of Alto. Among the visitors were Engineers Theron N. Mize and C. F. Hampton, registered engineers from Commerce.

The highlight of the meeting was the showing of the notable color motion picture, "Inside Passage," by Burton J. Bell, public information officer of the South Atlantic Division, U. S. Corps of Engineers, which was preceded by a talk by Mr. Bell on the activities of the Corps in this area.

Representatives of the Atlanta Chapter, in addition to Mr. Bell were Past State President Stephen C. Hale, P.E., and State Secretary George M. Normandy, P.E.

Cincinnati Chapter Award Goes To Brady

The recipient of the annual award of $100 from the Cincinnati Chapter OSPE, to the outstanding graduating senior in the College of Engineering, University of Cincinnati, was William G. Brady, aeronautical engineering senior from Wilbraham, Massachusetts. In addition to being a member of the Student-Chapter of OSPE, he was a member of Phi Beta Pi, an honorary fraternity, and a member of the Student branch of the Institute of Aeronautical Science.

Mr. Brady was a member of the armed forces during the last war, serving in the Signal Corps for three years before entering the University of Cincinnati. He plans to further his education at Brown University in the field of Applied Mathematics.

Miami Chapter Hears Professor

The regular meeting of the Miami Chapter of the Florida Society of Professional Engineers was held recently in Miami. After the reading of the minutes, various committee chairmen presented their committee reports. Committee chairmen making reports were, Professional Engineers F. D. R. Park, Membership Committee; Stuart Lofbert, Constitution and By-Laws Committee; Leonard Culter, Ethics and Fees Committee; Jules Channing, Safety and Welfare Committee.

Mr. Forest Banning, P.E., Vice-President of the Chapter, reported on the group of Netherland industrialists, contractors and engineers who recently visited the greater Miami area for a one week's tour under the auspices of the E. C. A. Various members of the Miami Chapter assisted in discussion groups and field trips arranged for the benefit of the visiting Netherlanders.

Dr. H. Horton Sheldon, Professor of Industrial Engineering at the University of Miami, was the guest speaker. Dr. Sheldon flatly stated that out of 800 so called manufacturing plants in the Miami area all but two or three of them would be in the hands of banks is business conditions became bad. He blamed this on the inefficiency of production and development, poor layout and improper industrial design used in industrial plants in this area.

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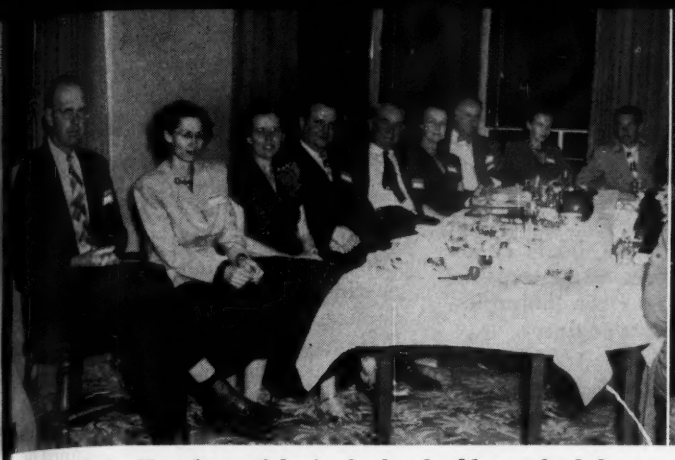


Scenes of the Nevada confab. At the head table on the left are, l. to r., R. W. Millard, P.E., 1st Vice-President, Ely, Nevada; Mrs. R. W. Millard; Mrs. F. W. Clayton; F. W. Clayton, P.E., President, Reno, Nevada; J. H. Buehler, P.E., National Director and Immediate Past President, Pioche, Nevada; Mrs. J. H. Buehler; R. T. Campbell, P.E., Secretary, Henderson, Nevada; Mrs. R. T. Campbell; L. J. H. Smith, P.E., Henderson, Nevada. The photo on the right was taken during the banquet.

Nevada Society Meets In Reno; F. W. Clayton To Head Western Group

The Nevada Society of Professional Engineers recently held its Annual Meeting in Reno, Nevada.

A business session was held both morning and afternoon, at which officers for 1950-1951 were elected and programs for the year outlined. State President J. H. Buehler presided at both sessions and addresses were given by Prof. H. B. Blodgett of Reno, Wright L. Felt of San Francisco and C. B. White, Jr. of Carson City, Nevada.

The officers elected were: F. W. Clayton, P.E., Reno, President; R. W. Millard, P.E., Ely, 1st Vice-President; George W. Von Tobel, P.E., Las Vegas, 2nd Vice President; M. E. Lundberg, P.E., Elko, 3rd Vice-President; J. H. Buehler, P.E., Pioche, National Director; R. T. Campbell, P.E., Henderson, Secretary; Geo. E. Franklin, P.E., Las Vegas, Treasurer.

A banquet for all engineers and their wives was held in the Prospectors Room of the Mapes Hotel. Following dinner, the new officers were installed and the chair was turned over to President Clayton. Speakers of the evening were: Wright L. Felt, Division Engineer, Bureau of Community Facilities, F.W.A., San Francisco; John B. Alexander, Pacific Coast Representative of Knappen, Tippetts, Abbott Engineering Co., San Francisco; H. E. Stewart, Civil Engineer, Retired, Reno; L. J. H. Smith, Miller-Haynes-Smith, Henderson; and F. W. Clayton, Consulting Engineer, Reno.

Illinois Society Sets Examination Dates

The next examination for Illinois Professional Engineers will be given November 16 and 17, 1950 in Chicago.

Tyre C. Hughes, "Oldest Active Engineer" Dies

It is with deep regret that the Oklahoma SPE announces the death of Tulsa Engineer Tyre C. Hughes, 91, on July the fifteenth. Mr. Hughes died in a Long Beach, California hospital after a week's illness.

Hughes, often called "the nation's oldest active engineer," will be remembered chiefly by NSPE members for his address at the 1949 annual meeting held in Houston, Texas.

Born and educated in Plattsburg, Missouri, Hughes was graduated from the University of Missouri's civil engineering school in 1884, and for two years afterward was assistant U. S. engineer of the Mississippi Right-of-Way Commission. After working with various railroads in an engineering capacity, Mr. Hughes served as city engineer of Kansas City, Kansas. Later, in 1906, he moved to Tulsa, Oklahoma and was appointed Tulsa city engineer, a position he held for 12 years. From 1918 to 1930 he operated the Hughes Engineering Co., and in 1938 he assumed his post as assistant engineer which he held until his death.

West Virginia Society Announces Convention Program

Plans have been completed for the seventeenth annual convention of the West Virginia SPE, which will be held at The Greenbrier, White Sulphur Springs on September 1 and 2.

Keynoting the varied program will be an address by The Honorable Okey L. Patteson, Governor of West Virginia, at the Society's luncheon on Saturday, and a speech during Saturday's business session by Mr. Sidney L. Stolte, P.E., newly elected president of the NSPE.

Recommendation for Fair Salary Rate Made in Decatur

John A. Askren, P.E., President of the Central Illinois Chapter, ISPE, recently sent a letter to the Mayor and City Council of Decatur, Illinois recommending a more appropriate salary rate for engineering services rendered in the city of Decatur.

Mr. Askren stated that by no means did this justify the position that all engineers, regardless of job requirements should receive identical salaries. Instead, the rate-of-pay scale suggested was intended to recommend a salary commensurate with the engineering abilities and services required on the particular job.

Enclosed with Mr. Askren's letter was a copy of the Chapter's "Schedule of Minimum Fees and Salaries," based on the Bureau of Labor Statistics, Cost of Living Index, as the adjustment multiplier to use with salaries schedules. This Index, applied to the minimum salary recommendations of the Central Illinois Chapter, comprised the table.

Mr. Askren closed with a recommendation, on behalf of the Chapter, that these factors be considered when making Decatur's budget and personnel adjustments.

New Post For Wolf

Ralph L. Wolf, P.E., a member of the Franklin County Chapter, Ohio SPE, was recently named the new traffic engineer for the city of Columbus.

Until his new appointment, Mr. Wolf was an engineer in the Franklin County Department of Building Regulation. He is a graduate of Ohio State University with 25 years of engineering experience and a veteran of both World Wars.

Summertime—And The Living Is Easy

Central Illinois Chapter of ISPE recently held a "pot-luck" picnic dinner followed by group games with assorted prizes. The feature attraction of the picnic was the awarding of miscellaneous "white elephant" prizes, which the ladies had wrapped up from odds and ends around the house, to be awarded to winners of various games.

The Maumee Valley Chapter of the Ohio SPE held its annual jamboree recently at Lost Creek Country Club, Lima, and all members and their friends were invited. The program included dinner, golf, door prizes and entertainment.

Tilden Park in Berkeley was the recent scene of the Bay Area, California, SPE's summer picnic. The day's activities included a barbecue, swimming, boating, hiking, baseball, tennis, golfing, and horseshoes for the adults, and a merry-go-round and pony rides for the children.

The Toledo Chapter, OSPE, had a summer frolic recently at the Chippewa Golf Club. Golf and other games were made more enjoyable by the awarding of prizes, and a chicken dinner was served at the end of the day's activities.

The summer outing of the Central Ohio Chapter, OSPE, was held at the Mount Vernon Country Club, Lancaster, Ohio, recently. Golf was the feature of the afternoon, with refreshments being served for the less athletically-inclined members of the organization. No formal plans were made for the evening, the only program being relaxation for all amid the lovely surroundings of the club.

Capital Chapter Has Supper Meet

The Capital Chapter of Illinois SPE held its recent meeting at The Mill in Springfield, Illinois. Dinner was served at 6:15, and Carl Thunman provided the evening's entertainment with a brief talk on Sweden, supplemented with movies taken on his recent trip there. The movies were followed by a discussion of vital Professional Engineering problems, led by President Pat Murphy, P.E.

Pennsylvania Court Upholds Registration

In a recent meeting of the Executive Board of the Pennsylvania SPE, G. G. Jacobosky, P.E., and Alternate Director, Northeast Chapter, reported a court decision dealing with the Registration Act.

Mr. Jacobosky told the Board that in a recent case before Judge Lewis in Luzerne County, Pennsylvania, the court found that the plaintiff was not a registered engineer and therefore could not collect for engineering services. Jacobosky suggested further that all Chapters of NSPE should be on the lookout for cases of this type, as these decisions strengthen the professional standing of the engineer.

Kings County Chapter To Give Refresher

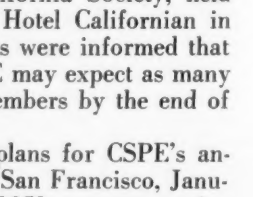
The Kings County Chapter, NYSSPE, announces a new series of refresher courses conducted by professional engineers. The Society, which represents the licensed professional engineer directly, has committed its resources and specialized talent to the guidance of future professional engineers.

The courses are to be divided into three parts: Structural Planning and Design; Basic Engineering Sciences, which will include Thermodynamics & Hydraulics, Electricity and Mechanics; and Engineering Economics. The first two courses will consist of twenty weeks while the third will last for six. For further information write the Brooklyn Engineer's Club, 117 Remsen Street, Brooklyn, N. Y.

California Expects 1000 New Members

At a meeting of the Board of Directors of the California Society, held recently at the Hotel Californian in Fresno, members were informed that it appears CSPE may expect as many as 1000 new members by the end of the year.

In addition, plans for CSPE's annual meeting in San Francisco, January 19 and 20, 1951, are progressing satisfactorily, and a record turnout is expected.



DATES TO REMEMBER

West Virginia Society of Professional Engineers—Sept. 1, 2. Greenbrier Hotel, White Sulphur Springs.

Wisconsin Society of Professional Engineers—Summer Meeting, Sept. 8, 9. Wisconsin Rapids.

New York State Society of Professional Engineers — Autumn Meeting, Sept. 29, 30. Hotel Syracuse, Syracuse, New York.

Missouri Society of Professional Engineers—Oct. 26, 27, and 28.

Oklahoma Society of Professional Engineers—Jan. 12, 13. Biltmore Hotel.

Texas Society of Professional Engineers—Jan. 25, 26, and 27. Baker Hotel, Mineral Wells.

New York State Society of Professional Engineers—Silver Anniversary Convention and Annual Engineering Industries Exposition. May 10, 11, 12. Statler Hotel, New York, New York.

Bridgeport to Offer Prep Courses For State Board Exams

For the first time in Bridgeport, Connecticut, this fall, courses of engineering instruction will be offered applicants for the State Board Examinations prior to registration as professional engineers. These courses are being offered through the efforts of the Fairfield County Chapter of the CSPE.

The courses, which were planned by a committee of the Society's members and the faculty and officials of Bridgeport Engineering Institute, will comprise 16 sessions, one weekly, commencing in October. They will cover the general fundamentals of mathematics, applied mechanics, strength of materials, and physics.

The syllabus has been drawn up after comprehensive studies of past examinations and advice from Mr. W. K. Simpson, member of CSPE and Secretary of the Connecticut State Board of Examiners. Committee members working on the program from the Fairfield County chapter were: Professional Engineers John Shallenberger, George N. Brown, and Edward J. Nesbitt, and from the B. E. I., Leslie A. Hoffman, Dean. Both Mr. Nesbitt and Mr. Shallenberger had been connected with the faculty of B. E. I.

Ohio Schedules Toledo for '51 Convention

The Lake Erie, Maumee Valley, Ohio Northern and Toledo Chapters of the Ohio Society will be hosts for the 1951 OSPE convention which will be held in Toledo, on March 29, 30, and 31, 1951.

The coordinator for the convention will be Charles E. Hatch, P.E., Vice President, OSPE, and Arthur E. Fryer, P.E., will serve as General Chairman. Co-Chairmen will be the four Presidents of the host Chapters and are Professional Engineers Burt Wyandt, Maumee Valley, Gerald Clever, Ohio Northern, Harold Childers, Lake Erie, and Guy Neeper, Toledo.

Steinman to Address Detroit Meeting

Dr. David B. Steinman, P.E., one of the founders of NSPE and its first president, will be guest speaker at a dinner meeting of the Detroit Chapter of the Michigan Society to be held at the Rackham Building in Detroit on September 14th. Following the dinner, which will be held at 6:30, Dr. Steinman will address a meeting at 8:00 open to all engineers.

Jackson Chapter Meets In Michigan

Some twenty-five engineers attended the monthly meeting of the Jackson Chapter, Michigan SPE, held recently in Jackson.

The guest speaker was Mr. Howard D. Clark, who spoke on "Photography for Fun and Profit." This proved to be a very interesting topic as Mr. Clark is well qualified to talk on this subject, having recently completed an Aerial Survey of Jackson.

Movies completed the evening's entertainment, which was followed by the Chapter's business meeting.

It was announced that a picnic was being planned and that the affair would complete the season's programs. Date of the picnic will be announced. Fall meetings will start again in September.

It is hoped that the members will continue their interest in the society throughout the summer and that some progress may be reported at the resumption of activities in the fall, officials said.

New York Society News Notes

Leigh St. John, P.E., (Broome Area Chapter), became Chairman of the Board of Examiners, and William H. Larkin, P.E. (Richmond Chapter), became Vice Chairman of the Board of Examiners.

Edward J. Quirin, P.E., member of Queens Chapter, has been elected President of Frederic R. Harris, Inc., Consulting Engineers.

Employment Practices

(*Continued from page* 15)

are the employment practices used by the firms satisfied with their technique? A correlation study between sets of data available in this survey might give some indication. Further questioning of these firms might reveal information of value.

Some of the comments appended to the questionnaires show qualifications of the categorical "yes" or "no" answers. Two such, given by firms who had answered "Yes" to question sixteen are: "We find that techniques have to vary greatly according to supply of applicants and pressure of demand," and "We are always searching for better methods." This would seem to indicate that employers recognize the dynamic quality of the personnel selection situation, and the necessity for flexibility of employment techniques and sustained attention to their development and use.

—From The Oklahoma Prof. Engr.

Edwards of Illinois To Head Hydraulics Meet In Chicago

The sixth annual National Conference in Industrial Hydraulics, to be held October 18 and 19 at the Sherman Hotel in Chicago, will be under the direction of Frank W. Edwards, P.E., director of civil engineering at Illinois Institute of Technology, and a prominent member of the Illinois SPE and NSPE.

The new conference secretary has been closely associated with the hydraulics field throughout his career since he received his master's degree in hydraulics in 1930 at the University of Iowa.

From 1928 to 1932 he was employed by the Management and Engineering Corporation in Iowa in hydro-engineering and hydraulic research work. He spent the next year as research assistant in the U. S. bureau of agricultural engineering.

From 1933 to 1946 Edwards occupied a variety of civilian positions with the U. S. Army corps of engineers.

Among the projects on which he worked were chief of hydraulic structures design for flood control, Los Angeles (Sept. 1935 to March 1936); and chief of the hydraulics section for Mississippi river flood control, New Orleans (Sept. 1936 to April 1939).

From April 1939 to March 1942, he was chief of hydraulics section of the third locks project in the Panama Canal Zone. He was senior engineer and chief of the military subdivision of the Wilmington district from May 1942 to Sept. 1943.

After teaching two years at Pennsylvania State College where he headed the hydraulics division, Edwards was principal engineer and chief of the design branch of the Missouri basin project from May 1945 to Sept. 1946.

In 1946 he accepted a position as professor of civil engineering at Carnegie Institute of Technology. Two years later he assumed his present duties as head of civil engineering at Illinois Tech.

The industrial hydraulics conference was formerly under the direction of Sidney F. Musselman, assistant chairman of applied mechanics research at Armour Research Foundation of Illinois Institute of Technology.

Frank W. Edwards, P. E.

Industrial Engineering Degree Offered At U. of Minnesota

Starting this fall, a newly established degree of Bachelor of Industrial Engineering will be offered in the Institute of Technology, University of Minnesota. The curriculum is designed to satisfy a long recognized need in industry for men capable of applying the technical knowledge and analytical ability of engineering to the myriad of problems facing industrial firms throughout the country. Post war developments towards greater competition have further intensified the demand for such men for greater stress than ever is being placed on the production of better products at lower costs.

The five year program, which is under the direction of Professor Lee S. Whitson, nationally recognized industrial engineer, will have as its objectives the training of students in the development of production methods and production equipment, the layout of industrial plants, the day to day operation of plants, and the preparation of management surveys applicable to long range planning.

The course work for the first three years will be essentially the same as that offered in the mechanical engineering curriculum, the major difference being that the students will also take selected courses in the School of Business. During the last two years they will concentrate on industrial engineering courses.

Is Engineering a Profession?

(*Continued from page* 13)

Probably the first thing which would come to mind would be an organization of the professional group devoted to the public welfare as well as to the protection and advancement of the legitimate interests of the group. Engineers have plenty of organizations but those organizations have shown little tangible concern for the public welfare and have been singularly ineffective in protecting the legitimate interests of their members. They have served primarily as forums for the exchange of technical information and have been an important factor in the advancement of the art and science of engineering in its several specialized branches. These organizations functioned in the way they were designed to function and rendered the service desired by their members. Most of these organizations, for reasons which seemed good to them, offered the privilege of membership in some form to individuals who were not professionals in the sense we are using that word. As is natural in the independent development of separate groups, there was no uniformity in nomenclature or in standards of membership and even their codes of ethics differed in phraseology and in emphasis. How could the public be expected to distinguish engineering as a profession when the engineers themselves could not decide who was an engineer, what he should be called, what ethical standards should govern his professional relations to others, and how to build an organization to speak for them as a professional group.

Organization Means To An End

Sometimes I think that we have put too much emphasis on the matter of organization and have come to think that if only we devised the right kind of organization all our problems would automatically be solved. Of course, this is not so. Any organization is only the means to an end; an instrument or tool, by the use of which a group of people having common interests hope more efficiently or more effectively to attain their objectives. We should treat our organizations as such. We should be willing to use them and by using them determine their limitations as well as their merits. We should modify them to meet new situations and we should scrap them when they are obsolete or worn out. The difficulty with human organizations is that they become so mixed with our sentiments and our prejudices that we frequently blind ourselves to their limitations and delay a much needed job of renovation or renewal.

Recognition of this unsatisfactory state of affairs by engineers is not a new thing. I have heard about it all my professional life. Many of us would like to change it. The difficulty is we cannot seem to agree on how to go about it, let alone what the final solution should be. As I look back on past and present efforts to unify and strengthen the profession, it seems to me that there have been at least three handicaps; some of our schemes have been too ambitious, some of them have been too remote from the individual, and the majority of our brethren in engineering have not had very fully developed professional consciousness.

However worthy the objectives of an organization may be, if its operation and personnel are so remote from the individual engineer that he has no feeling of belonging and has little or no knowledge of its activities, is it surprising that it arouses so little interest and enlists so meager support among the rank and file of the profession? Individual membership, individual participation in its activities, and individual payment of dues in furtherance of its objectives would seem to be requisites for any constructive and aggressive organization of professional people.

What the Individual Can Do

I HAVE been asked, "What can we do as individuals?" My answer runs like this. If we see a job that needs doing, and if we want to have it done, and if we are willing to exert ourselves to help do it, I suggest that we start with ourselves and with those most closely associated with us in our own communities. Each of us should do his own job by which he makes his living to the best of his ability. Each of us should continually prepare himself for greater responsibilities and for greater opportunities. Each of us must not only talk but act as a professional man. Acting as a professional man involves membership in at least one organization devoted to the advancement of the art and science of one's particular specialized branch of engineering. But one's activities should not be confined to his specialized technical field. Each of us should support work in the broader field of his professional interest by whatever mechanism is at hand or by joining with his fellows in the development of a mechanism appropriate to their local problems. Each of us should be active in some local civic organization, thereby demonstrating to people in other walks of life that engineers are not narrow, antisocial specialists.

I think most of the people who have discussed this subject would agree with these suggestions for individual action. I submit two more for your consideration. First, I suggest that each of us recognize the facts of life as they exist today in the field of professional licensure. Let us stop arguing about whether or not it should be and devote ourselves to making it what it might be—another useful instrument for the advancement of the profession and for the protection of the public.

SECOND, I suggest that each of us recognize that the great majority of engineers work for other engineers and that the latter, smaller group has a professional obligation to the larger group. Speaking as one of that group legally classified as an employer to those in similar positions, may I point out that each of us can influence, and sometimes even control, the professional development and the economic status of the engineers under our direction. Let us not be too busy to give some attention to that obligation. Specifically, let us not use the title "engineer" in any form for people who are not engineers or for positions which do not require engineering training or experience. Let us not assign engineers to jobs which are not engineering. Then let us pay salaries to those in real engineering positions commensurate with their individual training, experience, and ability and let us treat them as we would like to be treated, both in our economic and professional relationships. Let us be sure that we put our professional ideals into practice in our own offices and shops. If we do so, many of the problems of the employee engineer will be well on the way to a solution.

The Second Mile

If each of us will go the second mile in all these relationships, if each of us will minister to the people to the best of his ability, we shall make more rapid progress in attaining recognition as members of a profession. We may even succeed in improving our economic position, and in developing an organization of and for the whole profession which will be a more perfect instrument for the continuous advancement of the profession and for constructive public service. When we shall have accomplished these things, there will no longer be any occasion to discuss the question: "Is engineering a profession?" The answer will be taken for granted and we shall be free to devote all our talents and energies to the carrying out of our obligations as professional men and citizens.

What They're Saying

(*Continued from page* 17)

medical profession:

A. Charge fees that are too high, particularly specialists.

B. They do not train enough doctors to meet the demands.

C. They do not tell their patients enough concerning the patient's case.

D. The poor can be sick and receive attention without cost.

The rich can pay, but the middle classes suffer from pride and lack of funds. If the alleged abuses are real and can be demonstrated as fact, there will be no one who will more readily admit these faults than the doctors themselves and will hasten to correct them. No one wants to destroy something good, rather than correct its shortcomings. The indicated action is to eliminate weaknesses and perpetuate.

Though, most think it will be the doctors who suffer the greatest from a socialized program, it is doubtful if the doctor will be handicapped as much as the patient himself, in this instance the engineer. The physician will obviously devote too much time to the non sick or hypochondriacs and will consume valuable time in paper work and records. All this will not injure the doctor from a selfish standpoint but will jeopardize the health of the patient who is really ill and needs his attention.

In summation then, socialized medicine does affect the engineer both as a patient and as a professional man. What can he do to help defeat such a program? Certainly the medical profession does not have the numerical strength to even scratch the surface politically, therefore he needs numbers. More strength to exert influence in legislative matters. If nothing more, moral support. The engineer can get better acquainted with the doctors in his community, express a desire to assist. Perhaps he can attend medical meetings as a speaker or invite doctors to appear before his own organization. He could write articles to appear in print. He can contact his legislative representatives. Ask his own family physician the part he, the engineer, can play. Entice the engineering organizations to become active in support of the doctors to defeat the program. In short, get busy. Time is wasting. This may be the turning point, and let us not say in retrospect, "It was too little and too late." The flood washed out the whole bridge.

Can the engineer afford to just mind his own business? We shall hope not.

—*Kansas Society of Professional Engineers' Newsletter*

ARE WE SO WRONG? . . .

In recent years there has been considerable criticism of the engineer and scientist for not having played a more conspicuous part in the political and social affairs of modern society. It is tacitly assumed that this is the fault of the scientist, and further, that something is lacking in the science and engineering curricula which leads to this state of affairs.

I believe considerable evidence could be assembled to cast doubt on the allegations that scientists and engineers are not active in civic affairs —particularly at the local levels. We all can name persons with scientific training who are active in municipal affairs, and I have no fear that the graduates of our universities and technical schools will not continue to do so. I doubt that it is deplorable that "of 531 members of Congress there are six engineers, . . . 299 were lawyers." Is not the legal profession primarily concerned with our political and social institutions? We should feel encouraged that there are so many men trained in the sciences who are active in governmental affairs, despite the fact that they are not in their major field, and that few appreciate the type of contribution they can make. And at that these older men have not had the advantages of recent efforts to humanize and liberalize collegiate curricula in engineering.

Perhaps what is needed is an improved cross-fertilization of ideas between the humanities and engineering. All credit to the engineers for realizing that they should be more aware of society and its moral, ethical, and political needs, but this is only a part of our present problem; actually it is a minor matter in our over-all educational responsibility. It is also of great importance that courses be provided in the liberal studies, journalism, law, economics, and religious curricula to introduce science and engineering philosophy to these areas. Students in these fields are primarily concerned with the humanistic phases of our society. Is not this the group who should be made aware of the capabilities and fields of interest of our scientists and engineers? The scientist is concerned primarily with what makes things work; the engineer in how to assure the occurrence of a desired result. It is to acquaint the non-engineer with this philosophy that should be our object. How can we as engineers expect to influence the thinking of our legalists by competing with them in their specialties? The reverse would not seem to be reasonable. Therefore, why not broaden the educational experience of the embryo lawyer or governmental specialist. We need have no fear of being left out of the councils of our political and social thinkers if they appreciate properly our own special scientific fields, and can be shown how engineering thinking must be integrated with social thinking.

We have passed through an era in engineering education wherein the importance of liberal studies has been emphasized. Some feel that we have overemphasized this desirable discipline. It is time to consider reversing the process to provide engineering experience for the non-engineer. Studies on the philosophy of and the potential impact of the work of the engineer on society, given from the viewpoint of the engineer, must be introduced in our liberal curricula before we may expect many men in public affairs to be aware of the interaction of science and humanity. When they do, better prospects will exist for cooperation between all groups of our society.

Engineering education is young. It will mature in proportion to the way it develops a philosophy and makes that philosophy known and felt by our community. We need men who will take time to interpret the capabilities and limitations of the engineer with respect to other components of society. I hope someday we may see a professor of engineering giving lectures to students in liberal curricula and explaining the philosophy of science and the possible interrelations of engineering and our social order.

As chemical engineers we realize how adaptable and elastic our process industries can be. We must be aware of the social and political implications of our acts, and how the acts of government put new boundaries on our thoughts. I plead for an equivalent understanding by the non-engineer, so that he may be in better position to integrate his thoughts and acts with those of the engineer. We now lack a large measure of cooperation in our daily social problems, not alone because the engineer may not be a good enough humanist, but also because the humanist is not well acquainted with the scientist. Let us mature to the point where we will tell the non-technical men of our work; it is an important and interest-absorbing story. It is not the story of the popular press; it is a story with deep moral and social significance. It should be told by engineers to non-engineers. It should be done at the university during the students' formative years, and it should also be done later whenever the engineer has the opportunity.

—*J. Henry Rushton*
in Chemical Engineering Progress, August, 1950.

Ohio's Courtesy Card Idea is New and Good

The Ohio Society of NSPE has inaugurated a system of issuing "Courtesy Cards" to all graduating engineers in the state's engineering schools. This card will entitle the graduate to the privileges of his local Chapter until he can join the Society as an Engineer-in-Training.

The local OSPE chapters will then attempt to follow the activities of these young engineers, and notify the chapter nearest him in the event that he should move. Moreover, the Ohio Society is trying to expand this idea to other State Societies and plans to send out-of-state names to the proper location.

This plan is designed to assure the young engineer of the Society's interest in him, and establish loyalty toward his profession and the National Society of Professional Engineers.

Boone Named to Head Committee for Civil Defense of California

Harry J. Boone, P.E., has been designated by the California SPE to map plans for Civilian Defense of the state in the event of World War III. He is to head the Society's state committee on Civil and Passive Defense.

In a statement to the Los Angeles *Herald*, Boone said, "The state needs a dispersal plan for industries," with particular reference to the large aircraft plants in Southern California. Speaking of Passive Defense, Boone called Camouflage "a great life saver and one of the chief factors of defense. The best camouflage is achieved by making it a prime factor in construction plans, particularly with special consideration being given to it in the selection of sites for installations."

Boone was graduated from the University of Southern California in 1923. After joining the United States Engineers in 1940, he became chief of Passive Defense for the Army in Hawaii and later for Alaska and Canada.

Fill Out Coupon To Get Your Firm On New NSPE List

The national headquarters of NSPE in Washington, D. C. is constantly receiving requests for the names of firms doing work in various fields of engineering. These are sometimes requested by locality, types of work, or specific problems involved.

To benefit our members, and to be of service to commercial organizations and government agencies in search of data, NSPE is attempting to set up a roster of engineering firms. The coupon below will supply all the information needed. If you would like your firm to be listed on the NSPE Roster of Engineering Firms, fill out the coupon below and MAIL IMMEDIATELY to NSPE, 1121 15th St., N.W., Washington, D. C.

ROSTER OF ENGINEERING FIRMS

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NAME .....

ADDRESS .....

Is your firm interested in foreign work? ☐ Yes ☐ No
(Check Fields of Interest Below)

☐ **CIVIL**

- ☐ Bridges
- ☐ Foundations and Soils
- ☐ Highways
- ☐ Waterways
- ☐ Water Works and Sewerage
- ☐ Surveying
- ☐ City Planning
- ☐ Industrial Buildings
- ☐ Dams
- ☐ Airports
- ☐ Structural
- ☐ .....

☐ **MECHANICAL**

- ☐ Heating and Ventilating
- ☐ Automotive
- ☐ Welding
- ☐ Power Plant
- ☐ .....

☐ **CHEMICAL**

- ☐ Oils and Gases
- ☐ Plastics
- ☐ Rubber
- ☐ .....

☐ **ELECTRICAL**

- ☐ Accoustical
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- ☐ Communications
- ☐ Electronics
- ☐ .....

☐ **INDUSTRIAL**

- ☐ Management
- ☐ Safety
- ☐ Materials Handling
- ☐ Time and motion
- ☐ .....

☐ **AERONAUTICAL** ☐ **AGRICULTURAL** ☐ **ARCHITECTURAL** ☐ **CERAMIC**

☐ **MARINE** ☐ **MINING & METALLURGICAL** ☐ **PETROLEUM** ☐ **TRAFFIC**